

EPHRAIM MOGALE LOCAL MUNICIPALITY



BID DOCUMENT

TENDER NO. EPMLM/8/3/405

CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES

CIDB GRADING: 2GB OR HIGHER

NOVEMBER 2021

PREPARED FOR AND BY

THE MUNICIPAL MANAGER

EPHRAIM MOGALE LOCAL MUNICIPALITY

Private Bag x 111

MARBLE HALL

0450

Tel: (013) 261 8400

Fax: (013) 261 4055

NAME OF BIDDER : _____

CSD SUPPLIER NO : _____

CRS(CIDB) NO : _____

TENDERED AMOUNT (WORDS) : _____

TENDERED AMOUNT (FIGURES) : _____

TEL NUMBER : _____

FAX NUMBER : _____

EPHRAIM LOCAL MUNICIPALITY**CHANGING OF VEHICLE GARAGES TO OFFICE BLOCK****EPMLM/08/03/405****Contents****Number | Heading****The Tender****Part T1: Tendering procedures**

- | | |
|------|--|
| T1.1 | Tender Notice and Invitation to Tender |
| T1.2 | Tender Data |
| T1.3 | Standard Conditions of Tender |

Part T2: Returnable schedules

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| T2.1 | List of Returnable Documents |
| T2.2 | Returnable Schedules to be completed by tenderer |

The Contract**Part C1: Agreements and Contract Data**

- | | |
|------|---|
| C1.1 | Form of Offer and Acceptance |
| C1.2 | Contract Data |
| C1.3 | Form of Guarantee |
| C1.4 | Agreement with Adjudicator |
| C1.5 | Agreement in Terms of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993 |

Part C2: Pricing data

- | | |
|------|----------------------|
| C2.1 | Pricing Instructions |
| C2.2 | Bill of Quantities |

Part C3: Scope of Work

- | | |
|------|---------------------------|
| C3.1 | Standard Specifications |
| C3.2 | Project Specifications |
| C3.3 | Particular Specifications |

Part C4: Site information

- | | |
|------|-----------------|
| C4.1 | Tender Drawings |
|------|-----------------|

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Contractor

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Employer

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PART T1: BIDDING PROCEDURES

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EPHRAIM MOGALE LOCAL MUNICIPALITY
CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK
OFFICES

BID NUMBER: EPMLM/08/03/405

VERY IMPORTANT NOTICE ON DISQUALIFICATIONS:

A bid not complying with the peremptory requirements stated hereunder will be regarded as not being an “Acceptable bid”, and as such will be rejected.

The municipality shall adjudicate and award Bids in accordance with the Preferential Procurement Policy Framework Act 5/2000 and revised Preferential Procurement Regulation January 2017 on 100 points functionality and on a 80/20 points system, where 20 points are for the price and 20 points for B-BBEE according to the said legislation. Bids are required to submit valid B-BBEE status level verification certificates.

1. Valid Registration with CSD
2. If any pages have been removed from the bid document, and have therefore not been submitted, or a copy of the original bid document has been submitted. Failure to complete the schedule of quantities as required, i.e. only lump sums provided.
3. Scratching out, writing over or painting out rates, without initialling next to the amended rates or information, affecting the evaluation of the bid.
4. Not initialling all the pages including the cover page and drawings.
5. The use of correction fluid (i.e. tippex) or any erasable ink, e.g. pencil.
6. Non-attendance of mandatory/compulsory:
 - Site inspections or;
 - Information/Clarification meetings
7. The Bid has not been properly signed by a party having the authority to do so, according to the example of “Authority for Signatory”.
8. No authority for signatory submitted – See example, where it is stated that a duly signed and dated original or certified copy of the company’s relevant resolution **(for each specific bid)** of their members or their board of directors, must be submitted.
9. Particulars required in respect of the bid the bidders B-BBEE status level of contribution have not been completed, the bid will not be disqualified but **no preference points will be awarded.**
10. **Very important notice** Bidders must note that only information filled in at the spaces provided therefore in the bid document will be considered for evaluation purposes unless additional space is required and then only if the location of the additional information in the attachments is properly referred to by page number and section heading. Information supplied anywhere else will be disregarded which **may** lead to the rejection of the bid. **The attachment or inclusion of information not specifically asked for is not desirable and lead to delays in the awarding of bids.**

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11. **Bidders should also note that all tables and forms should be filled in even if the information is attached in the annexures. Bidder should not write refer to as it will lead to disqualifications**
12. The bidder attempts to influence, or has in fact influenced the evaluation and/or awarding of the contract
13. The bid has been submitted either in the wrong bid box or after the relevant closing date and time.
13. Bidders will be disqualified if any municipal rates and taxes or municipal service charges owed by the bidder and any of its directors to the municipality, or to any other municipality or municipal entity or are in arrears for more than three months.
14. If any bidder who during the last five years has failed to perform satisfactorily on a previous contract with the municipality, municipal entity or any other organ of state after written notice was given to that bidder that performance was unsatisfactory.
15. The accounting officer must ensure that irrespective of the procurement process followed, no award may be given to a person –
 - (a) who is in the service of the state, or;
 - (b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder, is a person in the service of the state; or;
 - (c) who is an advisor or consultant contracted with the municipality in respect of contract that would cause a conflict of interest.
16. **Failure to provide: A copy of valid registration with the CIDB, in an appropriate contractor grading designation (category), as required in the bid documentation (or in the case of a joint venture, of all the partners in the joint venture).**
17. Bid offers will be rejected if the bidder or any of his directors is listed on the Register of Bid Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector.
18. Bid offers will be rejected if the bidder has abused the EPMLM's Supply Chain Management System and action was taken in terms of paragraph 38 of the EPMLM SCM Policy.
19. If at any time during the project implementation phase the rates or prices are found to be abnormal, irregular and or not market related among other things, the engineer may after written approval from the municipality revise them to a practical or market related rate. The amount on the form of offer will be considered as the final cost of works.
20. Form of offer not completed and signed by the authorised signatory.
21. The letter of intent to issue guaranteed must completed and the letter of guarantee attached
22. All the attachments with certification should not be older than 6 months were required
23. No submission of financial statements or audited financial statements required, unless if the bided amount is above R 10m
24. Complete all questionnaires; spaces or Spaces, if the item is not applicable to you, mark it, not applicable. Sign all pages.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

NOTE:

IN THIS DOCUMENT AND OTHER DOCUMENTS REFERRED TO BUT NOT ATTACHED, THE FOLLOWING WORDS ARE SYNONYMOUS WITH EACH OTHER.

1. CLIENT, EMPLOYER, EPHRAIM MOGALE LOCAL MUNICIPALITY (EPMLM).
2. BID, BID AND VARIATIONS THEREOF
3. JOINT VENTURE / CONSORTIUM



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

SUMMARY FOR BID OPENING PURPOSES

NAME OF BIDDING ENTITY:

.....

PHYSICAL STREET ADDRESS:	POSTAL ADDRESS:

TELEPHONE NUMBER :

FAX NUMBER :

E-mail ADDRESS :

CONTRACT PRICE : R.....
(Amount brought forward from the Form of Offer and Acceptance) *

Signed by authorised representative of the Bidding Entity:

DATE:

- Should any discrepancy occur between this figure and that stated in the Form of Offer and Acceptance, the latter shall take precedence and apply.

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Contractor

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Witness 1

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Employer

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Witness 1

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Witness 2

T1.1: BID NOTICE AND INVITATION TO BID**EPHRAIM MOGALE LOCAL MUNICIPALITY****BID NUMBER: EPMLM/08/03/405**

Bids are hereby invited for the **conversion of an existing vehicle parking building into a block offices in Ephraim Mogale Local Municipality in Limpopo.**

Bid documents are available from the office of the Cashier's Office, Ephraim Mogale Local Municipality.

It is estimated that tenderers should have an estimated CIDB contractor grading of **2GB OR HIGHER**

Only bidders who comply with the following requirements are eligible to submit bids:

- Register with CIDB and having an estimated grading of **2GB OR HIGHER**
- Bids will be evaluated on the 80/20 points system
- Bids will be evaluated on the functionality with a minimum qualifying score of 70 points.
- Only bidders who meet the required minimum threshold on local content and production of 100% for cement and steel related value add products will be considered.

Criteria	Maximum Weights
Company Experience	30
Plant and Equipment necessary for construction	10
Specific personnel knowledge	45
Bank rating/Financial Standing	15
Total Points for Functionality	100

Only bidders who can demonstrate that they will have in their employ staff which satisfies EPWP requirements during the contract validity are eligible to submit bids.

Bid documents will be obtainable as from Wednesday, **01 December 2021** at the offices of Ephraim Mogale Local Municipality (not on Site, in Marble Hall, upon of a non-refundable amount of **R780** only cash or bank guaranteed cheque made out to Ephraim Mogale Local Municipality will be acceptable.

All bids will remain valid for a period of ninety days after the time and date of opening. Late submissions, telegraphic, telegraphic or e-mail transmission bid will not be accepted. Ephraim Mogale Local Municipality does not bind itself to accept the lowest or any bid and reserves the right to accept a bid as a whole or in part.

All bids and supporting documents must be sealed in a cover clearly marked "**BID No. EPMLM/08/03/405: CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES**" and must be deposited in the bid box at **ground floor Finance Department, Ephraim Mogale Local Municipality, Marble Hall, not later than 12:00 on 10 December 2021.**

Supply Chain Management related enquiries can be directed to Mr. J. Madisha from the procurement office of Ephraim Mogale Local Municipality on 013 261 8400. Technical related enquiries can be directed to **Mr. TJ Ramatselela** from Civil services office of Ephraim Mogale Local Municipality on 013 261 8454.

MATLADI ST
MUNICIPAL MANAGER

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

T1.2: BID DATA

The Conditions of bid in the Standard Conditions of bid as contained in Annex F of SANS 294 – *Construction Procurement Processes, Methods and Procedures* contains references to the bid Data for details that apply specifically to this bid.

The BID Data shall be read with the Standard Conditions of bid in order to expand on the Bidder's obligations and the Employer's undertakings in administering the bid process in respect of the project under consideration.

The BID Data hereafter shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of bid.

Each item of bid Data given below is cross-referenced to the relevant clause in the standard Conditions of BID.

F.1.1 The Employer for this Contract is: **EPHRAIM MOGALE LOCAL MUNICIPALITY.**

F.1.2 Bid Documents

The Bid Document consists of the following:

BID

Part T1: Bidding Procedures

Part T2: Returnable Documents

CONTRACT

Part C1: Agreements and Contract Data

Part C2: Pricing Data

Part C3: Scope of Work

Part C4: Site Information

DRAWINGS

The bid Document with the drawings shall be obtained from the Employer or his authorized representative at the physical addresses stated in the bid notice, upon payment of the deposit stated.

F.1.4 The Employer's agent is:

Name : Mr. TJ Ramatselela
Telephone : (013) 261 8400 Fax: (013) 261 4055

F.1.5 The Employer's right to accept or reject any bid offer

The Employer is not obliged to accept the lowest or any bid offer.

F.2.1 Eligibility

A bidder will not be eligible to submit a bid if:

- (a) The Contractor submitting the bid is under restrictions or has principals who are under restriction to participate in the Employer's procurement due to corrupt or fraudulent practices;
- (b) The bidder does not have the legal capacity to enter into the contract.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

- (c) The Contractor submitting the BID is insolvent, in receivership, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of the foregoing;
- (d) The bidder does not comply with the legal requirements stated in the Employer's procurement policy;
- (e) The bidder cannot demonstrate that he possesses the necessary professional and technical qualifications and competent, financial resources, equipment and other physical facilities, managerial capability, personnel, experience and reputation to perform the contract;
- (f) The Bidder cannot provide proof that he is in good standing with respect to duties, taxes, levies and contributions required in terms of legislation applicable to the work in the contract.

Only those bidders who are registered with the Construction Industry Development Board (CIDB) in a contractor-grading equal to or higher than a contractor grading designation **3GB OR HIGHER** or higher **3GB OR HIGHER** or a combined grading (in the case of a joint venture) equal or higher than **3G BOR HIGHER** as defined in the Regulations (09 August 2004 and 22 July 2005), in terms of the CIDB Act No 38 of 2000, are eligible to submit BIDs for this contract.

F.2.1	Only those Bidders who have in their employ management and supervisory staff satisfying the requirements of the scope of work for labour intensive competencies for Supervisory and management staff are eligible to submit bids.
F.2.18	The Bidder shall, when requested by the Employer to do so, submit the names of all Management and supervisory staff that will be employed to supervise the labor-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.

F.2.7 Site visit and clarification meeting

The arrangements for the compulsory clarification meeting are as stated in the Bid Notice and Invitation to bid.

F.2.10 Pricing the bid offer

- (a) Value Added Tax
 - The Valued Added Tax (VAT) rate shall be 15% or as otherwise provided for by legislation.
 - The successful bidder shall be required to produce a VAT invoice that shall only be prepared once measurements and valuations for work done in terms of the contract offer have been agreed with the Employers agent and a certificate of payment issued.
 - Payment of VAT to non-VAT vendors shall be processed from the month in which the bidder's liability with the South African Revenue Services is effective.

F.2.11 Alterations to document

A BID offer shall not be considered if alterations have been made to the forms of bid data or contract data (unless such alterations have been duly authenticated by the bidder) or if any particulars required therein have not been completed in all respects.

F.2.12 Alternative bid offers

No alternative offers will be considered.

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F2.13 Submitting a bid Offer

F.2.13.1 No Bidder may submit more than one Bid as set out in this clause in the Standard Conditions of Bid

F.2.13.3 Bid offers shall be submitted as an original only.

Under no circumstances whatsoever may the bid forms be retyped or redrafted.

Photocopies of the original bid documentation may be used, but an original signature must appear on such photocopies.

F.2.15 Closing Time

The closing time for submission of bid Offers is: 12:00 hrs. On **10 December 2021**. Telephonic, telegraphic, telex, facsimile, electronic or e-mailed BIDs will not be accepted.

F.2.16 Bid offer validity

The bid Offer validity period is 90 days from the closing time for submission of bids.

F.2.17 The Bided lump sums and rates shall be final and binding irrespective of the total Bid price

F.2.19 Access

Access shall be provided for inspections and testing by personnel acting on behalf of the Employer.

F.2.22 Return of bid Documents

Not applicable.

F.2.23 Certificates

The bidder is required to submit with his bid the following Mandatory documents:

- Valid Proof of registration with CIDB
- Joint Venture Agreement and Power of Attorney in case of Joint Ventures;
- SANAS Accredited B-BBEE Verification certificate
- Certified Copies of Appointment letters and Completion certificate of relevant project
- Valid proof of registration with the compensation for occupational injuries and Diseases Act (COIDA)
- Municipal Account not older than 3 months for both directors and company

Additional Mandatory requirements

The Municipality adheres to all the acts relevant to procurements of goods and/or Services and its supply chain management policy. The Prescriptions of the Constitution and industry Development Board (CIDB) will apply.

F.3.4 Opening of bid Submissions

The time and location for opening of the **bid** offers are:

Time : 12:00 hrs. Date: **10 December 2021**

Location / Venue: **Finance Building, Marble Hall: EPHRAIM MOGALE LOCAL MUNICIPALITY**

Bid box,
Tel No (013) 261 8400

F.3.5 The two-envelope system will **not** apply to this bid.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

F.3.11 Evaluation of bid Offers

Bidders will be evaluated on quality, price and preference. It is important that the relevant information is included to enable the Technical Proposal to be evaluated in accordance with the procedure outlined below. All information must be submitted in a separate file. Tampering with the original Bid document will render the Bid non-responsive. Failure to comply with the above requirements will result in the Bid being disqualified. The Bid evaluation will be conducted as follows:

1(a) First

Bid documents that have been disassembled and copies of the Bid documents will be disqualified outright.

1(b) Second

Bidders will be checked for compliance with Bid Conditions and administrative responsiveness. Non-compliance with any of the requirements will render the Bid non-responsive and it will not be carried forward to the next stage. (refer to 2(a) below).

1(c) Third

The Bidder's experience, staffing and methodology will be evaluated. Each Bid will be assessed and awarded points for Functionality. **Failure to achieve 60 points out of the 100 for Functionality will render the Bid non-responsive.**

Only Bidders that score the specified minimum number of points for Functionality will be deemed to be acceptable and carried forward to the next stage. The rest will be disqualified. The points for functionality will not be carried forward to the remainder of the evaluation. (refer to 2(b) below)

1(d) Fourth

Points will be calculated for price on the relevant prices in accordance with the preference point system, 90/10 or 80/20. (refer to 2(c) below)

1(e) Fifth

Points for BBBEE will be awarded in accordance with the status level of contribution. refer to 2(d) below)

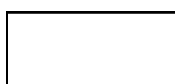
1(f) Final

The Bid will be awarded to the short listed Bidder who has scored the highest points for price and BBBEE status, unless there are justifiable, objective reasons to award the Bid to another Bidder. However, the Employer retains the right not to accept any Bid. Refer to (2e) below)

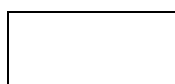
2(a) Compliance with Bid Conditions and other Requirements

The Bid will be checked to ensure that they comply with the Bid Conditions and all other requirements of the project document. In particular, the following documentation must be completed, signed and included in the Bid:

- a) Certificate of attendance at site inspection, to be signed onsite inspection attendance register.
- b) Certificate of Authority for Signature. For JV's a JV Agreement shall be provided (if applicable)
- c) Record of addenda to Bid documents.
- d) Certificate of non- collusive Bid
- e) Compliance with Occupational Health and Safety Act
- f) Compulsory enterprise questionnaire.
- g) Financial details, statements and bank references.
- h) Declaration of bidder's past supply chain management practices.



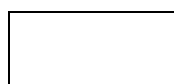
Contractor



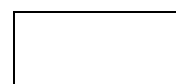
Witness 1



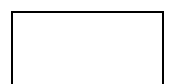
Witness 2



Employer



Witness 1



Witness 2

- i) Declaration of interest
- j) Construction industries development board registration.
- k) Form C1.1 – Form of Offer and Acceptance
- l) Contract Data Section 2: Data provided by the contractor

Failure to comply with the Bid Conditions or to supply the necessary information at Bid closure **WILL** result in the Bid being rejected. Non submission of any of the forms listed above will result in the Bid being rejected as non-responsive.

2(b) Second Stage in Evaluation: Quality or Functionality: Points System

A brief description of the scoring system is given below. A tabulated score sheet which will be used in the evaluation is as shown below.

The Bidder must be able to demonstrate that he understands the project and the various tasks required. Innovative solutions will be viewed favourably. For a definition of all terms, refer to Scope of Works. Bidders' submissions will be evaluated based on compliance with the following criteria to determine the responsiveness to the bid requirements:

- I. Organogram and CV's for key personnel
- II. Capability statement of the company with regard to this type of work in general, and the
 - Specifications of this bid. Provide project descriptions of similar completed projects, highlighting similarities between the completed projects and the specifications of this project. Highlight experience with similar projects in South Africa for similar electrical distribution authorities in the past 5 years. Provide contact details of employers for these projects. Points will be awarded for each project completed that is at least one grading lower than the CIDB grading called for this project.
- III. Plant and equipment: Indicate own and hired equipment, clearly indicating equipment to
 - be used specifically for this project.
- IV. Bank rating: Bidder's bank to complete the included form

Functionality

The bid will be subjected to functionality evaluation as per below criteria. Bidders will be required to obtain a minim qualifying score of **70 points** out of **100** to be further evaluated for price and preferential points

CRITERIA	WEIGHT	SCORES		
Company experience The tenderer to attach 3 largest appointment letters of similar projects & completion certificates. Failure to submit the required appointment letter and Completion certificates for each project signed by all parties namely: The employer, the contractor, and the Engineer, will result in the bidder getting zero points	30	No	Target Goals: List reference with details (civil engineering works)	Maximum points (30)
		1	Completed projects with value of R.0.6m and above	10 points each project.
		2	Completed projects with value of R0.4m to R0.6m	8 points each project
		3	Completed projects with value of R0.2m to R0.4m	5 points each project
		4	Completed projects with value of >R0.2m	3 points each project
		Referees provided, to be contactable to confirm the value and the completion certificates provided. NB: Submission of fraudulent documents is discouraged, and the tenderer will be disqualified.		

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Employer

Witness 1

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Experience of Key Personnel The expertise in terms of this tender is considered as considerable and it is essential that suitably qualified and experienced personnel be assigned to this contract. It would be extremely advantageous if the identified Site Agent/Foremen responsible for the execution of the work remain directly involved with this contract and have relevant experience related to similar successful contracts. certified Copies of Academic qualification certificates and registrations with a professional body needs to be attached for functionality points scoring otherwise no points will be allocated. Certified copies should not be older than Six months NB: Attach certified copy of trade test certificate)	45	<table><tr><td>Site Agent</td><td> Site Agent: Points: 15 0- No formal Education 5 certificate N6 Civil Engineering 10 N. Dip: Civil Engineering with less than 5 years' exp. 15 Pr. Techni. N. Dip: Civil Engineering with more than 5 years' exp. </td></tr><tr><td>Site Staff</td><td> Company supervisory staff Site Staff: 25 10: 2 x Bricklayers: 10: 2 x Plumbers: 5: 1 x Electrician: 5: Safety Officer with qualification </td></tr></table>	Site Agent	Site Agent: Points: 15 0- No formal Education 5 certificate N6 Civil Engineering 10 N. Dip: Civil Engineering with less than 5 years' exp. 15 Pr. Techni. N. Dip: Civil Engineering with more than 5 years' exp.	Site Staff	Company supervisory staff Site Staff: 25 10: 2 x Bricklayers: 10: 2 x Plumbers: 5: 1 x Electrician: 5: Safety Officer with qualification								
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Site Staff	Company supervisory staff Site Staff: 25 10: 2 x Bricklayers: 10: 2 x Plumbers: 5: 1 x Electrician: 5: Safety Officer with qualification													
Bank rating Tenderer to submit proof of bank rating not older than three (3) months. Bank rating and bank statements should be of the Lead Partner in terms of Joint Venture.	15	<table><tr><th>Bank Rating</th><th>Weighting</th></tr><tr><td>Bank Rating = A,B, C</td><td>15</td></tr><tr><td>Bank Rating = D</td><td>10</td></tr><tr><td>Bank Rating = E</td><td>5</td></tr><tr><td>Bank Rating = F to G</td><td>0</td></tr><tr><td>TOTAL</td><td>15</td></tr></table>	Bank Rating	Weighting	Bank Rating = A,B, C	15	Bank Rating = D	10	Bank Rating = E	5	Bank Rating = F to G	0	TOTAL	15
Bank Rating	Weighting													
Bank Rating = A,B, C	15													
Bank Rating = D	10													
Bank Rating = E	5													
Bank Rating = F to G	0													
TOTAL	15													
List of plant- 1. Tenderer to submit proof of ownership with certification not older than six months. 2. And in case of hiring, a letter of intent must be submitted with proof of ownership with certification not older than six months. 3. Bidders will score 5 points where the total minimum plant required has a letter of intent and also proof of ownership by a rental company	10	<table><tr><th>Required Plant</th><th>Weighting</th></tr><tr><td>1 x Truck >4ton</td><td>5</td></tr><tr><td>1x LDVs</td><td>5</td></tr><tr><td>TOTAL</td><td>10</td></tr></table>	Required Plant	Weighting	1 x Truck >4ton	5	1x LDVs	5	TOTAL	10				
Required Plant	Weighting													
1 x Truck >4ton	5													
1x LDVs	5													
TOTAL	10													
Total	100													

It is important that the Bidder provides information as requested as this information will be used for functionality in which a **minimum of 70 points** must be scored to move to the next stage of evaluation. The scoring will be according to the table below

Bidders must score a minimum of 70 percentage points out of the 100 percentage to qualify for further adjudication.

Contractor

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Employer

Witness 1

Witness 2

2(c) Fourth Stage in Evaluation: Price

The following must be completed in full

- * The pricing schedule
- * The form of offer. No alterations, subtractions or additions may be made to the items in the pricing schedule. All items must be priced or calculated.

A total of 90 points will be awarded to the Bid with the lowest balanced price. The other Bidders will be awarded points based on the ratio of the price under consideration to the lowest price.

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

where

P_s = Points scored for comparative price of bid under consideration
 P_t = Comparative price of bid under consideration
 $P_{\min}$ = Comparative price of lowest acceptable bid

2(d) Fifth Stage in Evaluation: BBBEE (Ph)

The Bidders will then be evaluated in terms of the Construction industry scorecard and the PPPFA regulation 34350 issued on 8 June 2011 with the values of Ph indicated as the number of points shown below.

FOR BEE EVALUATION: Kindly complete and sign the MBD.6.1 and attach ORIGINAL or CERTIFIED BBBEE certificates or the affidavit.

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

2(e) Final Stage in Evaluation : Calculation of Final Total Points

The final score or final total points for each Bid will be calculated by adding the scores from the; calculations.

$$P = P_s + P_h$$

F.3.13 Acceptance of bid Offer**F.3.13.1 Bid offers will only be accepted on condition that:**

- (a) the bid offer is signed by a person authorized to sign on behalf of the Bidder;

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Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

- (b) a valid original Tax Clearance Certificate is included with his bid;
- (c) the bidder's declaration of compliance with the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2014, is included with his bid submission;
- (d) a bidder who submitted a bid as a Joint Venture has included an acceptable Joint Venture Agreement with his bid;
- (e) the bidder or a competent authorized representative of the contractor who submitted the bid has attended the compulsory clarification meeting or site inspection;
- (f) the contractor who submits the bid has been registered with the Construction Industry Development Board in accordance with the Construction Industry Development Board Act No. 38 of 2000 and the CIDB Regulations 2003 promulgated in terms of the Act, or if the contractor can submit proof or evidence that he will be able to register within 10 days of the closing date for submission of bids;
- (g) the bidder or any of its principals is not listed on the register of bid Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;
- (h) the bidder has not abused the Employer's Supply Chain Management System or has failed to perform on any previous contract and has been given a written notice to this effect;
- (i) the bidder or any of its principals, directors or managers is not employed in the service of the State or any municipality. In the event that such principals are involved, official approval from the Executing Authority regarding carrying out remunerative work outside of the public service must be included in the BID submission.
- (j) the employer is satisfied that the bidder or any of his principals have not influenced the BID offer and acceptance by the following criteria:
 - a. having offered, promised or given a bribe or other gift or remuneration to any person in connection with the obtaining or execution of this Contract;
 - b. having acted in a fraudulent or corrupt manner in obtaining or executing this Contract;
 - c. having approached an officer or employee of the Employer or the Employer's Agent with the objective of influencing the award of a Contract in the bidder's favour;
 - d. having entered into any agreement or arrangement, whether legally binding or not, with any other person, firm or company to refrain from Bidding for this Contract or as to the amount of the BID to be submitted by either party;
 - e. having disclosed to any other person, firm or company other than the Employer, the exact or approximate amount of his proposed bid;
 - f. the employer may, in addition to using any other legal remedies, repudiate the bid offer and acceptance and declare the Contract invalid should it have been concluded already.

F.3.18 Copies of Contract

The number of paper copies of the signed contract to be provided by the Employer is ONE.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

T1.3: STANDARD CONDITIONS OF BID

(As contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement)

F.1 General

F.1.1 Actions

The employer and each bidder submitting a bid offer shall comply with these conditions of bid. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently.

F.1.2 Bid Documents

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

F.1.3 Interpretation

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

F.1.3.2 These conditions of bid, the bid data and bid schedules which are only required for bid evaluation purposes, shall not form part of any contract arising from the invitation to bid.

F.1.3.3 For the purposes of these conditions for the calling for expressions of interest, the following definitions apply:

- a) **Comparative offer** means the bidder's financial offer after the factors of non-firm prices, all unconditional discounts and any other bided parameters that will affect the value of the financial offer have been taken into consideration
- b) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the bid process; and
- c) **Fraudulent practice** means the misrepresentation of the facts in order to influence the bid process or the award of a contract arising from a bid offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels
- d) **Quality (functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

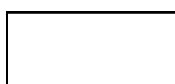
F.1.4 Communication and employer's agent

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

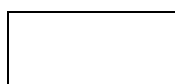
F.1.5 The employer's right to accept or reject any bid offer

F.1.5.1 The employer may accept or reject any variation, deviation, bid offer, or alternative bid offer, and may cancel the bid process and reject all bid offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a bidder for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a bid process or the rejection of all responsive bid offers re-issue a bid covering substantially the



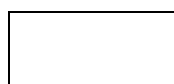
Contractor



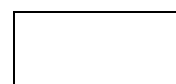
Witness 1



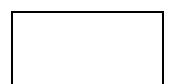
Witness 2



Employer



Witness 1



Witness 2

same scope of work within a period of six months unless only one bid was received and such bid was returned unopened to the bidder.

F.2 Bidder's obligations

F.2.1 Eligibility

Submit a bid offer only if the bidder complies with the criteria stated in the bid data and the bidder, or any of his principals, is not under any restriction to do business with employer.

F.2.2 Cost of bidding

Accept that the employer will not compensate the bidder for any costs incurred in the preparation and submission of a bid offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

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

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

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

F.2.9 Insurance

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

F.2.10 Pricing the bid offer

F.2.10.1 Include in the rates, prices, and the bided total of the prices (if any) all duties, taxes

(except Value Added Tax (VAT)), and other levies payable by the successful bidder, such duties, taxes and levies being those applicable 14 days before the

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

closing time stated in the bid data.

F.2.10.2 Show VAT payable by the employer separately as an addition to the bidder's total of the prices.

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

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

F.2.11 Alterations to documents

Not make any alterations or additions to the bid documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the bidder. All signatories to the bid offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

F.2.12 Alternative bid offers

F.2.12.1 Submit alternative bid offers only if a main bid offer, strictly in accordance with all the requirements of the bid documents, is also submitted. The alternative bid offer is to be submitted with the main bid offer together with a schedule that compares the requirements of the bid documents with the alternative requirements the bidder proposes.

F.2.12.2 Accept that an alternative bid offer may be based only on the criteria stated in the bid data or criteria otherwise acceptable to the employer.

F.2.13 Submitting a bid offer

F.2.13.1 Submit a bid offer to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the bid data.

F.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing in black ink.

F.2.13.3 Submit the parts of the bid offer communicated on paper as an original plus the number of copies stated in the bid data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

F.2.13.4 Sign the original and all copies of the bid offer where required in terms of the bid data. The Employer will hold all authorized signatories liable on behalf of the bidder. Signatories for bidders

Proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the bid offer.

F.2.13.5 Seal the original and each copy of the bid offer as separate packages marking the packages as

"ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and

Identification details stated in the bid data, as well as the bidder's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the bid data, place and seal the returnable documents listed in the bid data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the bid data, as well as the bidder's name and contact address.

F.2.13.7 Seal the original bid offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the bid data.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

F.2.13.8 Accept that the employer shall not assume any responsibility for the misplacement or premature opening of the bid offer if the outer package is not sealed and marked as stated.

F.2.14 Information and data to be completed in all respects

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

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the bid offer at the address specified in the bid data not later than the closing time stated in the bid data. Proof of posting shall not be accepted as proof of delivery. The employer shall not accept bid offers submitted by telegraph, telex, facsimile or e-mail, unless stated otherwise in the bid data.

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

F.2.16 Bid offer validity

F.2.16.1 Hold the bid offer(s) valid for acceptance by the employer at any time during the validity period stated in the bid data after the closing time stated in the bid data.

F.2.16.2 If requested by the employer, consider extending the validity period stated in the bid data for an agreed additional period.

F.2.17 Clarification of bid offer after submission

Provide clarification of a bid offer in response to a request to do so from the employer during the evaluation of bid offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the total of the prices or substance of the bid offer is sought, offered, or permitted. The total of the prices stated by the bidder shall be binding upon the bidder.

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

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the bid offer, the bidder's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the bidder not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the bid offer as non-responsive.

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

F.2.19 Inspections, tests and analysis

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

F.2.20 Submit securities, bonds, policies, etc.

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



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

conditions of contract identified in the contract data.

F.2.21 Check final draft

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

F.2.22 Return of other bid documents

If so instructed by the employer, return all retained bid documents within 28 days after the expiry of the validity period stated in the bid data.

F.2.23 Certificates

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

F.3 The employer's undertakings

F.3.1 Respond to clarification

Respond to a request for clarification received up to five working days prior to the bid closing time stated in the Bid Data and notify all bidders who drew procurement documents.

F.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the bid documents to each bidder during the period from the date of the Bid Notice until seven days before the bid closing time stated in the Bid Data. If, as a result a bidder applies for an extension to the closing time stated in the Bid Data, the Employer may grant such extension and, will then notify it to all bidders who drew documents.

F.3.3 Return late bid offers

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

F.3.4 Opening of bid submissions

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

F.3.4.2 Announce at the opening held immediately after the opening of bid submissions, at a venue indicated in the bid data, the name of each bidder whose bid offer is opened, the total of his prices, preferences claimed and time for completion, if any, for the main bid offer only.

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

F.3.5 Two-envelope system

F.3.5.1 Where stated in the bid data that a two-envelope system is to be followed, open only the technical proposal of valid bids in the presence of bidders' agents who choose to attend at the time and place stated in the bid data and announce the name of each bidder whose technical proposal is opened.

F.3.5.2 Evaluate the quality of the technical proposals offered by bidders, then advise bidders who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of bidders, who score in the quality evaluation above the minimum number of points for quality stated in the bid data, and announce



Contractor



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Witness 2



Employer



Witness 1



Witness 2

the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to bidders whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

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

F.3.7 Grounds for rejection and disqualification

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

F.3.8 Test for responsiveness

Determine, on opening and before detailed evaluation, whether each bid offer properly received:

- a) Meets the requirements of these Conditions of Bid,
- b) Has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the bid documents.

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

- Detrimentially affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- change the Employer's or the bidder's risks and responsibilities under the contract, or
- affect the competitive position of other bidders presenting responsive bids, if it were to be rectified.

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

F.3.9 Arithmetical errors

Check responsive bid offers for arithmetical errors, correcting them in the following manner:

- Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.
- If a bill of quantities (or schedule of rates) apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate will be corrected.
- Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the bidder's addition of prices, the total of the prices shall govern and the bidder will be asked to revise selected item prices (and their rates if a bills of quantities applies) to achieve the bided total of the prices.

Consider the rejection of a bid offer if the bidder does not correct or accept the correction of his arithmetical errors in the manner described above.

F.3.10 Clarification of a bid offer

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

Contractor

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Employer

Witness 1

Witness 2

F.3.11 Evaluation of bid offers**F3.11.1 General**

Appoint an evaluation panel of not less than three persons. Reduce each responsive bid offer to a comparative offer and evaluate it using the bid evaluation method that is indicated in the Bid Data and described below:

Method 1: Financial offer	1) Rank bid offers from the most favourable to the least favourable comparative offer. 2) Recommend highest ranked bidder for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 2: Financial offer and preferences	1) Score bid evaluation points for financial offer. 2) Confirm that bidders are eligible for the preferences claimed and if so, score bid evaluation points for preferencing. 3) Calculate total bid evaluation points. 4) Rank bid offers from the highest number of bid evaluation points to the lowest. 5) Recommend bidder with the highest number of bid evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 3: Financial offer and quality	1) Score quality, rejecting all bid offers that fail to score the minimum number of points for quality stated in the Bid data. 2) Score bid evaluation points for financial offer. 3) Calculate total bid evaluation points. 4) Rank bid offers from the highest number of bid evaluation points to the lowest. 5) Recommend bidder with the highest number of bid evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 4: Financial offer, quality and preferences	1) Score quality, rejecting all bid offers that fail to score the minimum number of points for quality stated in the Bid data. 2) Score bid evaluation points for financial offer. 3) Confirm that bidders are eligible for the preferences claimed, and if so, score bid evaluation points for Preferencing. 4) Calculate total bid evaluation points. 5) Rank bid offers from the highest number of bid evaluation points to the lowest. 6) Recommend bidder with the highest number of bid evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.2 Scoring Financial Offers

Score the financial offers of remaining responsive bid offers using either formulas 1 or 2 below as stated in the Bid Data:

Formula	Basis for comparison	Option 1	Option 2
1	Highest price or discount	$(1 + \frac{(P - P_m)}{P_m})$	P/P_m
2	Lowest price or percentage commission/fee	$(1 - \frac{(P - P_m)}{P_m})$	P_m/P

 Contractor

 Witness 1

 Witness 2

 Employer

 Witness 1

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where:

P_m = the comparative offer of the most favourable bid offer.

P = the comparative offer of bid offer under consideration.

F.3.11.3 Scoring quality (functionality)

Score quality in each of the categories stated in the Bid Data and calculate total score for quality.

F.3.12 Insurance provided by the employer

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

F.3.13 Acceptance of bid offer

F.3.13.1 Accept bid offer only if the bidder satisfies the legal requirements stated in the Bid Data.

F.3.13.2 Notify the successful bidder of the employer's acceptance of his bid offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the bid data, or agreed additional period. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful bidder as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful bidders

After the successful bidder has acknowledged the employer's notice of acceptance, notify other bidders that their bid offers have not been accepted.

F.3.15. Prepare contract documents

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

- a) Addenda issued during the bid period,
- b) Inclusion of some of the returnable documents,
- c) Other revisions agreed between the employer and the successful bidder, and
- d) The schedule of deviations attached to the form of offer and acceptance, if any.

F.3.16 Issue final contract

Prepare and issue the final draft of contract documents to the successful bidder for acceptance as soon as possible after the date of the employer's signing of the form of offer and acceptance (including the schedule of deviations, if any). Only those documents that the conditions of bid require the bidder to submit, after acceptance by the employer, shall be included.

F.3.17 Complete adjudicator's contract

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

F.3.18 Provide copies of the contracts

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



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

PART T2: RETURNABLE SCHEDULES

TABLE OF CONTENTS		Page	Colour
T2.1:	LIST OF RETURNABLE DOCUMENTS.....	T.21	
T2.2:	RETURNABLE SCHEDULES TO BE COMPLETED BY TENDERER	T.22	

Contractor

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Employer

Witness 1

Witness 2

T2.1: LIST OF RETURNABLE DOCUMENTS

The tenderer must complete the following returnable documents:

1 Returnable Schedules required only for tender evaluation purposes

A	MBD 1 – BIDDING INFORMATION & TERMS OF BIDDING	
B	MDB 4 - DECLARATION OF INTEREST	
C	MDB 6.1 - PREFERENCE SCHEDULE AND VERIFICATION	
D	MBD 6.2 – LOCAL PRODUCTION & CONTENT	
E	MDB 8 - PAST SCM PRACTICES	
F	MDB 9 - CERTIFICATE OF INDEPENDENT BID	
G	AUTHORITY OF SIGNATORY	
H	BANKING DETAILS AND RATING	
I	MUNICIPAL UTILITY ACCOUNT	
J	SCHEDULE OF PROPOSED SUBCONTRACTORS	
K	RECORD OF ADDENDA	
L	SCHEDULE OF TENDERER'S EXPERIENCE	
M	KEY PERSONNEL	
N	SCHEDULE OF PLANT AND EQUIPMENT	
O	CENTRAL SUPPLIER DATABASE	
P	CONSTRUCTION INDUSTRY DISTRIBUTION BOARD	
Q	COMPLIANCE WITH OCCUPATIONAL HEALTH AND SAFETY ACT1993	
R	REGISTRATION AS ELECTRICAL CONTRACTOR	
S	SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE	
T	SCHEDULE OF LABOUR	
U	FORM OF OFFER	

Contractor

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Witness 2

Employer

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Witness 2

NB: Mandatory documents will also be used for the evaluation

2. Other documents required only for bid evaluation purposes

	<u>Documents to attach</u>
	Board resolution on authority to sign
	Letter from the bank – details and Rating
	Municipal accounts (company and director)
	Appointment and completion letters
	Key CVs and certified qualification
	Proof of plant and equipment
	CIDB registration
	COIDA letter
	CSD
	B-BBEEE Certificate / sworn affidavit

Contractor

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Employer

Witness 1

Witness 2

FORM A: MBD 1

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE EPHRAIM MOGALE LOCAL MUNICIPALITY

BID NUMBER:	EPMLM/8/3/405	CLOSING DATE:	10-12-2021	CLOSING TIME:	12:00
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DESCRIPTION Conversion of an existing vehicle parking building into a block of offices.

THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN
THE BID BOX SITUATED AT;

EPHRAIM MOGALE LOCAL MUNICIPALITY (BUDGET & TREASURY AND TECHNICAL BUILDING)

NO. 2 FICUS STREET

MARBLE HALL

0450

NOTE: THE BID BOX IS ONLY ACCESSIBLE MONDAY - FRIDAY DURING OFFICE HOURS (08:00 TO 16:30)

SUPPLIER INFORMATION

NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBE R		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBE R		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		OR	CSD No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	☐ Yes ☐ No	

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

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES, ANSWER PART B:3]
--	---	---	---

TOTAL NUMBER OF ITEMS OFFERED		TOTAL BID PRICE	R
SIGNATURE OF BIDDER		DATE	

CAPACITY UNDER WHICH THIS BID IS SIGNED	
--	-------

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:

DEPARTMENT	SCM
CONTACT PERSON	JOSEPH MADISHA
TELEPHONE NUMBER	013 261 8450/ 8462
FACSIMILE NUMBER	013 261 4055
E-MAIL ADDRESS	jmadisha@emogalel m.gov.za

TECHNICAL INFORMATION MAY BE DIRECTED TO:

CONTACT PERSON	Takalani Ramatselela
TELEPHONE NUMBER	013 261 8454
FACSIMILE NUMBER	013 261 4055
E-MAIL ADDRESS	tramatselela@emogalelm.gov.za

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

PART B

TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR ONLINE**
- 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, 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 TAXPAYER'S 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 PART B:3.
- 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.

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM B: MBD4**MBD4****DECLARATION OF INTEREST**

1. No bid will be accepted from persons in the service of the state¹.
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 and/or take an oath declaring his/her interest.
3. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid. Also select the applicable answers ☒**
 - 3.1 Full Name of bidder or his or her representative:
 - 3.2 Identity Number:
 - 3.3 Position occupied in the Company (director, trustee, shareholder²)
 - 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.

.....

.....

¹MSCM 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

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

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 person 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 bidder and any persons in the service of the state who may be involved with the evaluation and adjudication of this bid? YES ☐ / NO ☐

3.11.1 If yes, furnish particulars

.....

.....

3.12 Are any of the company's directors, managers, principle 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 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.

Full Name	Identity Number	Employee Number

CERTIFICATION**I, THE UNDERSIGNED****(NAME)****CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.**

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature.....
Date.....
Capacity.....
Name of Bidder

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM C : MBD 6.1**MBD 6.1****PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL
PROCUREMENT REGULATIONS 2017****1.**

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

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

1. GENERAL CONDITIONS

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

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

1.2

- a) The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the **80/20** preference point system shall be applicable; or
- b) Either the 80/20 or 90/10 preference point system will be applicable to this tender

1.3 Points for this bid shall be awarded for:

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

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

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	20
Total points for Price and B-BBEE must not exceed	100

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

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

2. DEFINITIONS

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

3. POINTS AWARDED FOR PRICE

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

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

80/20

or

90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for price of bid under consideration

P_t = Price of bid under consideration

$P_{\min}$ = Price of lowest acceptable bid

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

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

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

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

5. BID DECLARATION

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

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

- 6.1 B-BBEE Status Level of Contributor: =
(Maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

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

(Tick applicable box)

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

- 7.1.1 If yes, indicate:

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

(Tick applicable box)

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

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

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

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional service provider
- ☐ Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

8.7 MUNICIPAL INFORMATION

Municipality where business is situated:

.....

Registered Account Number:

Stand Number:.....

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

8.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

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

WITNESSES

1.

2.

.....

SIGNATURE(S) OF BIDDERS(S)

DATE:

ADDRESS

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM D: MBD 6.2**MBD 6.2****DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS**

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

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

1. General Conditions

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

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

Where

x is the imported content in Rand

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

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

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

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

- 1.6. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation.
2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold</u>
Steel reinforcement	100%
Cement	100%

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

(Tick applicable box)

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

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

The relevant rates of exchange information is accessible on www.reservebank.co.za

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

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

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

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

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

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

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

IN RESPECT OF BID NO.

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

.....
 NB

- 1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
- 2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thdti.gov.za/industrial_development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),

do hereby declare, in my capacity as

of(name of bidder entity), the following:

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that:
 - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

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

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

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

SIGNATURE: _____

DATE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SATS 1286.2011

Annex C

Local Content Declaration - Summary Schedule

(C1) Tender No.

(C2) Tender description:

(C3) Designated product(s)

(C4) Tender Authority:

(C5) Tendering Entity name:

(C6) Tender Exchange Rate:

Pula

EU

GBP

(C7) Specified local content %

Note: VAT to be excluded from all calculations

Calculation of local content

Tender summary

Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)

(C20) Total tender value R 0

(C21) Total Exempt imported content R 0

(C22) Total Tender value net of exempt imported content R 0

(C23) Total Imported content R 0

(C24) Total local content R 0

(C25) Average local content % of tender

Signature of tenderer from Annex B

Date:

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM E: MBD 8**MBD 8****DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES**

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

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME)
CERTIFY THAT THE INFORMATION FURNISHED ON THIS
DECLARATION FORM TRUE AND CORRECT.**

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

Js367bW

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

FORM F: MBD 9**MBD 9****CERTIFICATE OF INDEPENDENT BID DETERMINATION**

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

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

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

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

MBD 9

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 statements that I certify to be true and complete in every respect:

I certify, on behalf of:

that:

(Name of Bidder)

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

*Contractor**Witness 1**Witness 2**Employer**Witness 1**Witness 2*

MBD 9

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

MBD 9

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


Contractor


Witness 1


Witness 2


Employer


Witness 1


Witness 2

FORM G: CERTIFICATE OF AUTHORITY

Indicate the status of the tenderer by ticking the appropriate box hereunder. **THE TENDERER MUST COMPLETE THE CERTIFICATE SET OUT BELOW FOR THE RELEVANT CATEGORY AND ATTACH A LETTER ON THE COMPANY LETTERHEAD.**

Please tick appropriate box:

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

A. CERTIFICATE FOR COMPANY

I,....., chairperson of the board of directors of hereby confirm that by resolution of the board (copy attached) taken on20...., Mr/Mrs.....acting in the capacity of.....,was authorised to sign all documents in connection with this tender and any contract resulting from it on behalf of the company.

As witness

1.....

Chairman

2.....

Date

B. CERTIFICATE OF PARTNERSHIP

We, the undersigned, being the key partners in the business trading as

hereby authorise Mr/Mrs....., acting in the capacity of.....to sign all documents in connection with the tender for Contract.....and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

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

C. CERTIFICATE FOR JOINT VENTURE

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

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

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

D. CERTIFICATE FOR CLOSE CORPORATION

We, the undersigned, being the key members in the business trading as.....hereby authorise Mr/Mrs..... 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 complete and signed by all the key members upon whom rests the direction of the affairs of the Close Corporation as a whole.

E. SOLE PROPRIETOR

I,....., chairperson and sole owner of, hereby confirm that by resolution of the board (copy attached) taken on20...., Mr/Mrs.....acting in the capacity of.....,was authorised to sign all documents in connection with this tender and any contract resulting from it on behalf of the company.

As witness

1.....
Chairman

2.....
Date

BIDDERS SHOULD ATTACH A DULY SIGNED AND DATED ORIGINAL OR CERTIFIED COPY OF THE LETTER OF AUTHORITY ON THE COMPANY'S LETTERHEAD, FAILURE TO DO SO WILL LEAD TO THE DISQUALIFICATION OF THE BID AS NON-RESPONSIVE

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM H: BIDDER'S BANKING INFORMATION

DETAILS OF BIDDERS'S BANK ACCOUNT

I/We furnish the following information:

- a) Name of Bank:
- b) Branch of Bank
- c) Town/city/suburb where bank is situated.....
- d) Contact Person at the Bank:
- e) Telephone number of Bank: Code: Number:
- f) Account Number:
- g) Bank rating: (Attach letter from the bank)

I/We hereby authorise the Employer to approach the above Bank for a reference.

NOTE:

BIDDERS SHOULD ENSURE THAT THEIR BANK ACCOUNT DETAILS HAVE BEEN VERIFIED ON THE CSD REPORT. IF SUCH IS NOT VERIFIED, BIDDERS SHOULD ATTACH A COPY OF THEIR BANK CONFIRMATION LETTER

BIDDERS SHOULD ATTACH A LETTER FROM THE BANK TO SUPPORT THE BANK RATING CLAIMED.

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

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

Tenderer.....



Contractor



Witness 1



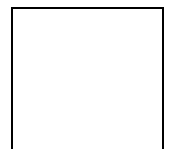
Witness 2



Employer



Witness 1



Witness 2

FORM I: DECLARATION WITH REGARDS TO MUNICIPAL SERVICES, RATES AND TAXES
--

I _____ the undersigned, declare on behalf of (Name of Bidder) _____ that;

the bidder and any of its director(s) does not owe any municipal services, rates and taxes to the municipality or any other municipality or municipal entity any amount which could be in arrears for an period for a period more than three months.

In the event that this declaration is found to be false, the bid will be rejected and found to be nonresponsive.

1. COMPANY ACCOUNT		
NAME OF MUNICIPALITY	ACCOUNT NUMBER	ACCOUNT / PROPERTY OWNER
2. ACCOUNTS OF COMPANY DIRECTOR(S)		
NAME OF MUNICIPALITY	ACCOUNT NUMBER	ACCOUNT / PROPERTY OWNER

NOTE:

TENDERER TO SUBMIT A COPY OF A MUNICIPAL ACCOUNT OF THE COMPANY AND THAT OF ITS DIRECTOR NOT IN ARREARS AND NOT OLDER THAN THREE (03) MONTHS; OR

IN THE EVENT THAT THE BIDDER IS LEASING, A LEASE AGREEMENT ALONG WITH THE ACCOUNT OF THE LEASED PROPERTY SHOULD BE ATTACHED; OR

A CONFRIMATION LETTER FROM THE LOCAL MUNICIPALITY NOT OLDER THAN THREE MONTHS CONFIRMING THAT SERVICES ARE NOT CHARGED/LEVIED AND BIDDER DOES NOT OWE

(FAILURE TO DO SO WILL LEAD TO THE DISQUALIFICATION OF THE BID AS NON-RESPONSIVE)

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

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

Tenderer.....

--

Contractor

--

Witness 1

--

Witness 2

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Employer

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Witness 1

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Witness 2

FORM J: SCHEDULE OF PROPOSED SUBCONTRACTORS

Will you be subcontracting on this project?

(Tick the appropriate box)

Yes ☐ / No ☐

We notify you that it is our intention to employ the following subcontractors for work in this contract.

If we are awarded a contract we agree that this notification does not change the requirement for us to submit the name 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.

	Name of Subcontractor	Contact Details	Description of Work to be executed by Subcontractor
1.			
2.			
3.			
4.			
5.			

Signature.....

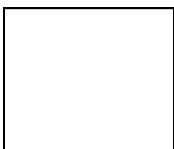
Date.....

Name.....

Position.....

Tenderer.....

53



Contractor



Witness 1



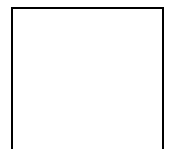
Witness 2



Employer



Witness 1



Witness 2

FORM K: RECORD OF ADDENDA TO TENDER DOCUMENTS

Was there an addendum issued for this project?

(Tick appropriate box and complete table accordingly)

Yes ☐ / No ☐

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

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

Attach additional pages if more space is required.

Signature..... Date

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

Tenderer.....

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM L: SCHEDULE OF TENDERER'S EXPERIENCE

The following is a statement of similar work successfully executed by myself/ourselves in the last three years:

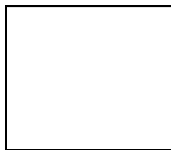
INSTITUTION NAME	RELEVANT PROJECT NAME	CONTACT PERSON	LAND LINE CONTACT NO.	CELL CONTACT NO.	PROJECT START & END DATE

NB: COMPLETE THE TABLE ABOVE ON COMPANY EXPERIENCE (COMPULSORY TABLE) AND ALSO ATTACH PROOF OF PROJECTS LISTED ON THE ABOVE TABLE (FAILURE TO DO SO WILL LEAD TO THE DISQUALIFICATION OF THE BID AS NON-RESPONSIVE) Focus on projects that will qualify for the functionality criteria first

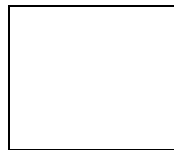
Signature..... Date

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

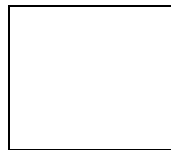
55



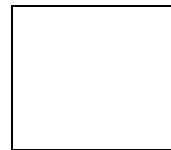
Contractor



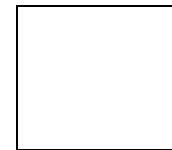
Witness 1



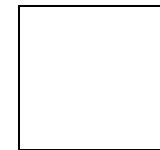
Witness 2



Employer



Witness 1



Witness 2

FORM M: PROPOSED KEY PERSONNEL

The Bidder shall list below the key personnel (including first nominee and the second choice alternate), whom he proposes to employ on the project should his Bid be accepted, both at his headquarters and on the Site, to direct and for the execution of the work, together with their qualifications, experience, positions held and their nationalities.

DESIGNATION	NAME OF	NATIONALITY:	SUMMARY OF		NQF Level
	(i) NOMINEE (ii) ALTERNATE		QUALIFICATIONS	EXPERIENCE AND PRESENT OCCUPATION	
<u>HEADQUARTERS</u> Site Agent					
<u>CONSTRUCTION MONITORING</u> Brick layer					
<u>CONSTRUCTION MONITORING</u> Safety Officer					

Signature..... Date

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

Tenderer.....



Contractor



Witness 1



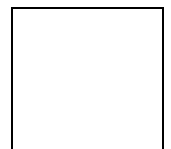
Witness 2



Employer



Witness 1



Witness 2

FORM N: SCHEDULE OF PLANT AND EQUIPMENT

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

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

Description	Manufacturer	Model	Capacity	Own or Hire

Letter of intent must be attached for any list of plant/equipment that will be leased/hired.
Attach additional pages if more space is required.

Signature..... Date

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

Tenderer.....



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

FORM O: CENTRAL SUPPLIER DATABASE REGISTRATION

No bid will be considered without the bidder being registered on the CSD with an active profile and a Tax Compliant status. Bidders must attached a document from the CSD showing the name of the business and the CSD number to enable live verification from the system

This will be verified during evaluation and again during adjudication. Bidders should ensure that their status stays compliant.

58



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

FORM P: CONSTRUCTION INDUSTRY DEVELOPMENT BOARD REGISTRATION

It is a compulsory requirement that the Municipality only appoint bidder with a suitable and active CIDB registration for construction projects. The requirement for this project is **3GB** or higher and the bidder must attach proof of registration.

Unfortunately, the Municipality don't have the capacity to appoint bidder Emerging into **3GB** or higher bidders musty already be registered for 3EP.

Bidder will not be considered if:

1. They are not registered with CIDB
2. They are not registered for the correct category
3. They are not registered for the correct minimum level of 3
4. The profile/registration is not active (this will be verified online during evaluation)
5. The bidder fail to attach proof.

CIDB registration no:

Category:

Signature..... Date

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

Tenderer.....



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

FORM Q: COMPLIANCE WITH OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 AND CONSTRUCTION REGULATIONS, 2014

The bidder shall attach to this Form evidence that he is registered and in good standing with a compensation insurer who is approved by Department of Labour in terms of section 80 of the Compensation for Injury and Disease Act (COID) (Act 130 of 1993).

The bidder is required to disclose, by also attaching documentary evidence to this form, all inspections, investigations and their outcomes conducted by the Department of Labour into the conduct of the bidder at any time during the 36 months preceding the date of this bid.

60

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM S: SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE
--

The bidder shall state his estimated value of the work to be completed every month, based on his preliminary programme and his bided unit rates, in the table below. The amounts for contingencies and contract price adjustment shall not be included.

MONTH	VALUE (INCLUDING VAT)
1	R
2	R
3	R
4	R
5	R
6	R
7	R
8.	
9	R
10	R
11 (FINAL)	R
TOTAL: R.....	
(EXCLUDING CONTINGENCIES AND CONTRACT PRICE ADJUSTMENT)	

Signature..... Date

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

Tenderer.....



Contractor



Witness 1



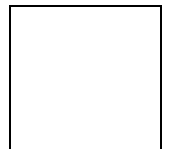
Witness 2



Employer



Witness 1



Witness 2

FORM T: SCHEDULE OF LABOUR**RDP 1 (E) SCHEDULE OF LABOUR CONTENT**

The Bidder must complete the table below to reflect the labour force anticipated to be employed on this contract, including labour employed by sub-contractors. The specified target value is 10%.

Note: A minimum of 5% target value should be obtained from Local Labour content

Type of Labour	Man-days	Male	Female	Youth	Minimum Wage Rate per Unit	Total Wage Cost (Excl VAT)
Permanent Labour						
Temporary Labour						
SMME/HDI's Labour						
					TOTAL	
					PERCENTAGE	

Notes to Bidder:

- (1) Labour is defined as hourly paid personnel or personnel paid per task.
 (2) The penalty for non-compliance during the contract or for fraudulent disclosure is discussed in Section C3.3.1.5.

Signature..... Date

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

Tenderer.....



Contractor



Witness 1



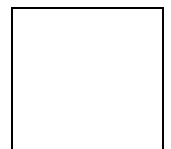
Witness 2



Employer



Witness 1



Witness 2

THE CONTRACT

- PART C1: AGREEMENTS AND CONTRACT DATA**
- PART C2: PRICING DATA**
- PART C3: SCOPE OF WORK**
- PART C4: SITE INFORMATION**

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EPHRAIM MOGALE LOCAL MUNICIPALITY

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C1.2.1: CONDITIONS OF CONTRACT

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C1.3: FORM OF GUARANTEE

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C4.2: CONDITIONS ON SITE: GEOTECHNICAL REPORT

C4.3: BID DRAWINGS



Contractor



Witness 1



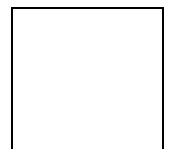
Witness 2



Employer



Witness 1



Witness 2

EPHRAIM MOGALE LOCAL MUNICIPALITY**CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES****C1.1 FORM OF OFFER AND ACCEPTANCE****Offer**

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

Contract No EPMLM/08/03/405: CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES .

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

By the representative of the bidder, deemed to be duly authorized, signing this part of this form of offer and acceptance, the bidder 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 bidder before the end of the period of validity stated in the bid data, whereupon the bidder becomes the party named as the contractor in the conditions of contract identified in the contract data.

Signature Block: Bidder

Signature Date

Name

Capacity

Name of organization.

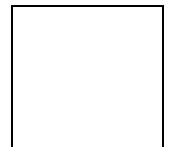
Address of organization

.....

Signature of witness Date

Name of witness

65

*Contractor**Witness 1**Witness 2**Employer**Witness 1**Witness 2*

Acceptance

By signing this part of this form of offer and acceptance, the employer identified below accepts the bidder'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 bidder's offer shall form an agreement between the employer and the bidder upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1: Agreements and contract data, (which includes this agreement)
 Part C2: Pricing data
 Part C3: Scope of work.
 Part C4: Site information
 and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

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

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

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

Signature Block: Employer	
Signature	Date
Name	
Capacity	
For the Employer: Municipal Manager Ephraim Mogale Local Municipality	
Signature of witness	Date
Name of witness	



Contractor



Witness 1



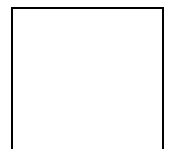
Witness 2



Employer



Witness 1



Witness 2

(Name and address of organization)

Name &
Signature of
Witness

For the Employer:

Signature(s)

Name(s)

Capacity

(Name and address of organization)

Name &
Signature of
Witness



Contractor



Witness 1



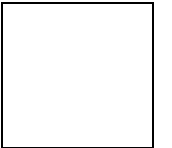
Witness 2



Employer



Witness 1



Witness 2

EPHRAIM MOGALE LOCAL MUNICIPALITY

CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES

C1.2 Contract Data

Section 1.01 The General Conditions of Contract for Construction Works (edition 2015) published by the South African Institution of Civil Engineering, is applicable to this contract. Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Tel: 011-805 5947).

The General Conditions of Contract for Construction Works make several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the general conditions of contract.

Each item of data given below is cross-referenced to the clause in the General Conditions of Contract for Construction Works to which it mainly applies.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

C1.2.1 CONDITIONS OF CONTRACT

GENERAL CONDITIONS OF CONTRACT

This Contract will be based on the "General Conditions of Contract for Construction Works - (edition 2015)", issued by the South African Institution of Civil Engineering (Short title: "**General Conditions of Contract 2015**") and can be obtained from:

SAICE

Waterfall Park
Howick Gardens
Vorna Valley Half way House
Becker Street
MIDRAND
1685
Gauteng Province
Tel: (011) 805-5947/8
Fax: (011) 805-5971.

It is agreed that the only variations from the General Conditions of Contract 2015 are those set out hereafter under "Special Conditions of Contract".

SPECIAL CONDITIONS OF CONTRACT

1. GENERAL

These Special Conditions of Contract (SCC) form an integral part of the Contract. The Special Conditions shall amplify, modify or supersede, as the case may be, the General Conditions of Contract 2015 to the extent specified below, and shall take precedence and shall govern.

The clauses of the Special Conditions hereafter are numbered "SCC" followed in each case by the number of the applicable clause or sub clause in the General Conditions of Conditions 2015, and the applicable heading, or (where a new special condition that has no relation to the existing clauses is introduced) by a number that follows after the last clause number in the General Conditions, and an appropriate heading.

2. ADDITIONAL SPECIAL CONDITIONS OR AMENDMENTS TO THE GENERAL CONDITIONS OF CONTRACT

2.1 General

The following clauses add to, vary or otherwise amend the General Conditions of Contract:

2.1.1 Cession (CL 2.5.1)

Delete the words "without the written consent of the other".

2.1.2 Contractor's Superintendence (CL 4.12)

Add the following sub-clause 4.12.4 to Clause 4.12:

"Where a form is included in the Appendix to the Contract Data for this purpose, the Bidder shall fill in the name of the person he proposes to entrust with the post of Contractor's Site



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

Agent on this Contract in the space provided therefor. Previous experience of this person on work of a similar nature during the past five (5) years is to be entered in the list.

The Contractor's Site Agent shall be on Site at all times when work is being performed.

The person as approved of by the Municipality in writing shall not be replaced or removed from Site without the written approval of the Municipality."

2.1.3 Programme (CL 5.6)

Add the following sub-clause 5.6.6 to Clause 5.6:

"Failure on the part of the Contractor to deliver to the Municipality, the

- programme of the Works in terms of Clause 5.6.1 and
- supporting documents in terms of Clause 5.6.2

Within the period stated in the Contract Data, shall be sufficient cause for the Municipality to retain 25 per centum of the value of the Fixed Charge and Value-related items in assessment of amounts due to the Contractor, until the Contractor has submitted aforementioned first Programme of the Works and Supporting Documents".

2.1.4 Contractor's Designs and Drawings (CL 5.9.7)

"All designs, calculations, drawings and operation and maintenance manuals shall be fully endorsed by a third party registered engineer, accomplished in such specific field of practice and the cost thereof shall be borne solely by the Contractor.

Once the alternative design has been approved, the Contractor shall indemnify and hold harmless the Municipality (the Employer), their agents and assigns, against all claims howsoever arising out of the said design, whether in contract or delict"

2.1.5 Suspension of the Works (CL 5.11)

Add the following sub-clause 5.11.4 to Clause 5.11:

"If the Contractor does not receive from the Employer the amount due under an Interim Payment Certificate within 28 days after expiry of the time stated in sub-clause 6.10.4 within which payment is to be made (except for deductions in accordance with sub-clauses 6.10.1.6 and 6.10.1.7), the Contractor may, after giving 14 days' notice to the Employer, suspend the progress of the Works.

The Contractor's action shall not prejudice his entitlements to a claim in terms of Clause 10.1 and to cancellation of the Contract in terms of Clause 9.3.

If the Contractor subsequently receives full payment of the amount due under such Interim Payment Certificate before giving a notice of cancellation of the Contract, the Contractor shall resume normal working as soon as is reasonably practicable."



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

2.1.6 Extension of Time Arising from Abnormal Rainfall (CL 5.12)

Add the following to sub-clause 5.12.2.2 :

“The extension of time to be allowed due to abnormal rainfall shall be calculated separately for each calendar month or part thereof in accordance with the following formula :

$$V = (Nw - Nn) + \frac{Rw - Rn}{x}$$

V = Extension of time in calendar days for the calendar month under consideration
 Nw = Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded
 Nn = Average number of days for the calendar month on which a rainfall of 10 mm or more has been recorded, as derived from existing rainfall records
 Rw = Actual recorded rainfall for the calendar month
 Rn = Average rainfall for the calendar month, as derived from existing rainfall records
 x = 20

The rainfall records which shall provisionally be accepted for calculation purposes are:

Based on records taken at: **Rainfall Station: POLOKWANE Lat: 23.8570 Lon: 29.4510 Height 1226 m**
Average No of Days with Rainfall exceeding 10mm: 69.2 days/year

Average Rainfall: 450.5 mm/year

Years of record: 2002 – 2012

Month	Average rainfall for calendar month Rn	Average number of days for calendar month on which a rainfall of 10 mm or more were recorded Nn
	(mm)	(days)
January	66.7	10.6
February	57.8	8.1
March	51.2	8.2
April	32.2	5.5
May	10.3	2
June	3.2	1.8
July	2.5	1.6
August	2.5	0.4
September	3.7	1.9
October	37.2	6.4
November	92.1	11
December	90.9	11.6

The factor (Nw - Nn) shall be considered to represent a fair allowance for days during which rainfall exceeds 10 mm and the factor (Rw - Rn)/x shall be considered to represent a fair



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

allowance for those days when rainfall does not exceed 10 mm but wet conditions prevent or disrupt work.

The total extension of time shall be the algebraic sum of all monthly totals for the contract period, but if the algebraic sum is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for a part of a month shall be calculated using pro rata values of N_n and R_n ."

2.1.7 Guarantee (Security) (CL 6.1)

Delete the contents of the first paragraph of Clause 6.2 and insert:

"The Contractor shall deliver to the Employer within such time as may be stated in the Contract Data a Demand Guarantee, of Insurance Company registered in terms of the Short-term Insurance Act (Act 53 of 1998) or registered Commercial Bank, in a sum equal to the amount stated in the Contract Data. The Demand Guarantee shall be issued by an entity approved by the Employer, and shall conform in all respects to the format contained in the Appendix to the Contract Data.

Wherever a joint venture constitutes the contracting party, the Demand Guarantee shall be issued on behalf of the joint venture.

Failure to produce an acceptable Demand Guarantee within the period stated in Clause 2.2.8 of the Contract Data is a fundamental breach of Contract, entitling the Employer to cancel the Contract by due notice in terms of Clause 9.2 with specific reference to sub-clause 9.2.2.5 as amended in the Special Conditions of Contract."

2.1.8 Variations (CL 6.3)

Omit the words "Provided that" under Clause 6.3.2 and omit Clause 6.3.2.1.

2.1.9 Interim Payments (CL 6.10.1)

Add to the end of Clause 6.10.1 the following paragraph:

"The Contractor shall complete the 'Contractor's Monthly Report Schedule', which pro forma documentation is obtainable from the Municipality. Pursuant to Sub-Clause (1), these, duly signed by all concerned, together with the Contractor's statement and a VAT invoice in original format are to be submitted to the Municipality. Issue by the Contractor of any signed payment certificate is conditional to this information being fully endorsed, accurately and timeously submitted to the Municipality".

Add to the end of Clause 6.10.1.5 the following paragraph:

"All documentary evidence of such materials shall be unambiguous with respect to ownership having fully passed to the Contractor on or before the date of submittal of the Contractor's monthly statement.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

Should the Contractor fail to supply unambiguous documentary evidence, he shall, prior to submittal of his monthly statement, deliver to the Employer a Guarantor Guarantee in the form contained in the Appendices to the Contract Data.”

2.1.10 Variations Exceeding 15 Per Cent (CL 6.11)

In sub-clause 6.11.1.3 omit the words “15 per cent” and replace with “20 per cent”.

2.1.11 Insurances (CL 8.6)

2.1.11.1 Contractor to produce proof of payment

Delete sub-clause 8.6.6 and substitute with:

“The Contractor shall before commencement of the Works produce to the Municipality:
8.6.6.1 The policies by which the insurances are effected,

period 8.6.6.2 Proof that due payment of all premiums there under, covering the full required
has been made, and

8.6.6.3 Proof of continuity of the policies for the required period.

Should, during the currency of the Contract, the required period of insurance be extended for any reason, the Contractor shall timeously extend (so as to maintain) the said insurances for the full extended duration.

The Municipality shall be empowered to withhold all payment certificates until the Contractor has complied with his obligations in terms of this Clause 8.6.”

2.1.11.2 Remedy of Contractor's failure to insure

Delete sub-clause 8.6.7 and substitute with:

“Failure on the part of the Contractor to effect and keep in force any of the insurances referred to in Clause 8.6.1 and its sub-clauses, is a fundamental breach of Contract, entitling the Employer to cancel the Contract by due notice in terms of Clause 9.2 and with specific reference to sub-clause 9.2.2.5, as amended, in the Special Conditions of Contract.”

2.1.12 Termination of the Contract (CL 9.1)

Alter the numbering of:

Clause 9.1.5 to 9.1.6,
Clause 9.1.6 to 9.1.7 and

insert the following new clause 9.1.5:



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

“The Employer shall be entitled to cancel the Contract, at any time for the Employer’s convenience, by giving written notice of such cancellation to the Contractor. The termination shall take effect 28 days after the later of the dates which the Contractor receives this written notice or the Employer returns the Demand Guarantee. The Employer shall not cancel the Contract under this sub-clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor.

This restriction on the Employer shall lapse 18 months after the date of receipt by the Contractor of cancellation in terms of this sub-clause”.

2.1.13 Termination by Employer (CL 9.2)

Delete the contents of Clause 9.2 and substitute with:

“9.2.1 The Employer may terminate the Contract by written notice to the Contractor if:

9.2.1.1 Sequestration of the Contractor’s estate is ordered by a Court with due jurisdiction, or

9.2.1.2 The Contractor publishes a notice of surrender or presents a petition for the surrender of his estate as insolvent, or makes a compromise with his creditors, or assigns in favour of his creditors, or agrees to carry out the Contract under the supervision of a committee representing his creditors, or (being a company) goes into liquidation, whether provisionally or finally (other than a voluntary liquidation for the purpose of amalgamation or reconstruction), or if the Contractor assigns the Contract without having first obtained the Employer’s consent in writing, or if execution is levied on his goods, or

9.2.1.3 The Contractor, or anyone on his behalf, or in his employ, offers to any person in the employ of the Employer or the Engineer, a gratuity or reward or commission, or

9.2.1.4 The Contractor furnished materially inaccurate information in his Bid, which had a bearing on the award of the Contract, or

9.2.1.5 The Contractor has abandoned the Contract

9.2.2 If the Contractor:

9.2.2.1 Has failed to commence the Works in terms of Clause 5.3 hereof, or has suspended the progress of the Works for fourteen (14) days after receiving from the Engineer written notice to proceed, or

9.2.2.2 Has failed to provide the Guarantee in terms of Clause 6.2 within the time stipulated in the Contract Data, or

9.2.2.3 Has failed to proceed with the Works with due diligence, or

9.2.2.4 Has failed to remove materials from the Site or to pull down and replace work within fourteen (14) days after receiving from the Engineer written notice that the said materials or work have been condemned and rejected by the Engineer in terms of these conditions, or

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

9.2.2.5 Is not executing the Works in accordance with the Contract, or is neglecting to carry out his obligations under the Contract, or

9.2.2.6 Has, to the detriment of good workmanship or in defiance of the Engineer's instructions to the contrary, sublet any part of the Contract, or

9.2.2.7 Has assigned the Contract or any part thereof without the Employer's consent in writing, then the Employer may give the Contractor 14 days' notice to rectify the default, and if the Contractor fails to rectify the default in said 14 days, then, without further notice, notify the Contractor in writing of the termination of the Contract and expel the Contractor and order the Contractor to vacate the site within 24 hours of issue of the Notice of Termination and to hand the Site over to the Employer, and the Employer may then enter upon the Site and the Works without affecting the rights and powers conferred on the Employer or the Engineer by the Contract and the Employer may himself complete the Works or may employ another contractor to complete the Works, and the Employer or such other contractor may use for such completion so much of the Construction Equipment, Temporary Works and materials brought onto the Site by the Contractor as the Employer may think proper, and the Employer may at any time sell any of the said Construction Equipment, Temporary Works and unused materials and apply the proceeds of sale towards payment of any sums that may be due or become due to the Employer by the Contractor under the Contract. In such circumstances the Contractor shall forthwith vacate the Site and shall not be entitled to remain on the Site on the grounds that he is entitled to do so on a right of retention until amounts due to him have been paid, neither will the Contractor be entitled to any further payments in terms of this Contract.

9.2.3 If the Contractor, having been given notice to rectify a default in terms of 55.2 above, rectifies said default, but later repeats the same or substantially the same default, then the Employer may notify the Contractor of the immediate termination of the Contract, and proceed as stated in the paragraph following the word "writing" in Clause 55.2.7 above.

9.2.4 Should the amounts the Employer must pay to complete the Works exceed the sum that would have been payable to the Contractor on due completion by him, then the Contractor shall upon demand pay to the Employer the difference, and it shall be deemed a debt due by the Contractor to the Employer and shall be recoverable accordingly. Provided that should the Contractor on demand not pay the amount of such excess to the Employer, such sum may be determined and deducted by the Employer from any sum due to or that may become due to the Contractor under this or any previous or subsequent contract between the Contractor and the Employer."

2.1.14 Termination by the Contractor (CL 9.3)

Add the following paragraph as Clause 9.3.5:

"In addition to, or as an alternative to the rights to termination contained in this Clause 9.3, the Contractor may notify the default to the Employer, with a copy to the Engineer, and if the default is not rectified within 10 days the Contractor may suspend progress of the works until a date 7 days after the default is rectified. The Contractor shall be entitled to extension of time to the extent of delay caused by or resulting from such suspension, and to payment of additional costs



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

caused by or resulting from the suspension. Such extension of time and additional costs shall be promptly ascertained by the Engineer, who shall then grant the extension of time and include the additional costs in all future payment certificates. Such suspension, extension of time and/or payment of additional costs, shall not prejudice the Contractor's rights to cancel the contract."

3. **PRIORITY OF DOCUMENTS**

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purpose of interpretation, the priority of the documents shall be in accordance with the following sequence:

- a) the Form of Offer and Acceptance.
- b) amplifications of the General Conditions of Contract within the Contract Data.
- c) additional special conditions or amendments to the General Conditions of Contract within the Contract Data.
- d) the General Conditions of Contract.
- e) the Specifications, Drawings, Schedules and other documents forming part of the Contract (in that order) contained in the Scope of Work and the Site Information.

If any ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

4. **TRANSFER OF RIGHTS**

TRANSFER OF RIGHTS AND INDEMNITY (To be completed during construction by successful Bidder only)

Claim for materials on site, Payment Certificate No. Date:
.....

Contract No: **for** (contract title)
.....

.....
.....

I, the undersigned (name of signatory) in my capacity as

..... of (name of Contractor)
.....

duly authorized hereto on behalf of the Contractor hereby transfer, cede and assign all the Contractor's rights, title and interest in and to the materials and goods, for which evidence of bona fide ownership is attached hereto, unto and in favor of (name of Employer) inssofar as the Contractor retains actual control of the materials and goods, the right of ownership thereof passes to the Employer by *constitutum possessorium*.

I herewith indemnify the Employer against any claim to and in respect of said materials by reason of the Contractor's sequestration or liquidation or of any defect in the Contractor's title to the materials and agree that no payment for materials on site will be made by the Employer until such time as I have submitted documentary proof of bona fide ownership of the said



Contractor



Witness 1



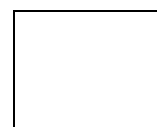
Witness 2



Employer



Witness 1



Witness 2

materials and goods.

This transfer shall become effective upon conclusion of the Contractor receiving payment from the Employer or from any other person on behalf of the Employer for the materials and goods as Materials on Site, payment of retention money thereon excluded.

I further confirm that I am fully responsible for all materials and goods listed under this Transfer of Rights and that they have been insured adequately against all risks and will remain insured until they are built into or used in the permanent works and taken over by the Employer.

This certificate of Transfer of Rights applies only to the materials and goods as listed in the following table:

Description of Item	Unit	Quantity	Rate	Amount	Supplier
Total Value of Materials and goods					

Signed by:Date:
.....
for and on behalf of the Contractor.

Witnessed by:Date:
.....

NOTE: This form, together with the documentary proof of ownership or proof of payment by the Contractor to the supplier, shall accompany the Contractor's claim for payment for materials on site in terms of **Clause 6.10.1.5 of the General Conditions of Contract 2010**.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

C1.2.2 PART A: CONTRACT DATA PROVIDED BY THE EMPLOYER

The following contract specific data are applicable to this contract.

REFERENCE CONTRACT SPECIFIC DATA BY THE EMPLOYER

Clause 1.1.15: **Name of Employer: Ephraim Mogale Local Municipality represented by Head of Department: Department of Technical Services**

Clause 1.2.1: **Address of Employer:**

Physical:

Postal:

The Employer's address for receipt of communications is

13 Ficus street
Marble Hall
0450

P.O.Box 111
Marble Hall
0450

Telephone No: 013 261 8400

Fax No: 013 261 4055

Clause 1.1.16: **Name of Engineer**

'Engineer' means any Director, Manager or official appointed by the Municipality to fulfil the functions of the Engineer in terms of the Contract Data.

Clause 1.2.1: **Address of Engineer:**

Physical:

Postal:

The Engineer's address for receipt of communications is:

13 Ficus street
Marble Hall
0450

P.O.Box 111
Marble Hall
0450

E-Mail: tramatselela@emogalelm.gov.za

Telephone No: (013) 261 8400 Fax No: (013) 261 8384

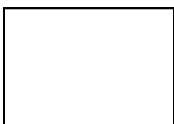
Clause 6.2: The Guarantee shall be delivered within 14 days after receipt of the Acceptance document from the Employer.

Clause 6.2: The Liability of the Guarantee shall be for 7.5% of the Accepted Bid Sum.

Clause 5.3: The contractor shall commence executing the work within 14 days of the Commencement date.

Clause 5.6.1 & 5.6.2: The Contractor shall deliver to the Engineer, within 14 days calculated from the Commencement Date, a realistic programme in terms of Clause 5.6.1 and supporting documents in terms of Clause 5.6.2.

Clause 8.6.1.1.3: The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is **NIL**



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

- Clause 8.6.1.2: Special risk insurance issued by SASRIA is required.
- Clause 8.6.1.3: The limit of indemnity for liability insurance required should not be less than the contract amount.
- Clause 5.13.1: The penalty for failing to complete the works is 0.05 % of the Total Bid Sum per Calendar Day
- Clause 6.8.2: The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:
- $$\text{Contract Price Adjustment Factor} = (1 - x) \left[\frac{aL_t}{L_o} + \frac{bP_t}{P_o} + \frac{cM_t}{M_o} + \frac{dF_t}{F_o} - 1 \right]$$
- rounded off to the fourth decimal place.
- Coefficients for calculating Contract price Adjustment Factor shall be:
Value of x is 0.10
- a = 0.15 b = 0.20 c = 0.55 d = 0.10
- L is the “Labour Index” and shall be the “Consumer Price Index – for Polokwane Area” In Release P 0141.1 Table 21
- The base month is: “the month prior to the closing of the Bid”
No Contract price Adjustment will be done if contract period is less than 7 months.
- Clause 6.83: Price adjustments for variations in the costs of special materials are not allowed.
- Clause 6.10.1.5: The percentage advance on materials not yet built into the Permanent Works is: 80%
- Clause 6.10.3: The percentage retention on the amounts due to the Contractor is 10 %, excluding contract price adjustment, contingencies and VAT, and limited to 10% of the contract amount, excluding contract price adjustment, contingencies and VAT. The retention will be reduced to 5% on completion of the project.
- Clause 6.10.5: A Retention money guarantee will be not permitted.
- Clause 7.8.1: The Defects Liability Period is 12 months measured from the date of the Certificate of Completion.
- Clause 10.7.1: Dispute resolution shall be by Adjudication.
- Clause 10.7.1: Dispute Resolution shall be by Adjudication.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

C1.2.2: PART B: CONTRACT DATA PROVIDED BY THE CONTRACTOR

The following contract specific data are applicable to this contract:

REFERENCE CONTRACT SPECIFIC DATA BY THE CONTRACTOR

Clause 1.1.9: **Name of Contractor:**

Clause 1.2.1: **Address of the Contractor:**
The Contractor's address for receipt of communication is:

<u>Physical:</u>	<u>Postal:</u>
.....	
.....	
.....	
.....	

E-Mail:

Telephone No: Fax No:

Clause 5.5 The works shall be completed within months (including special non-working days and the year end break).

Clause 6.8.3: The variation in cost of all special materials is to be provided in the table SM 1 for special materials.
The rates and prices for the special materials shall be furnished by the Bider, which rates and prices shall not include VAT but shall include all other obligatory taxes and levies. **The quoted price is the ruling price on the Month prior to close of bid.**

TABLE: SM1

Special Materials*	Unit	Rate or Price for the base month
.....		
.....		
.....		
.....		
.....		

*Contractor to indicate the type, unit and rate of special material to be listed. The Contractor shall substantiate the above rates or prices with acceptable documentary evidence. Contractor to provide any other Special Materials if deemed necessary.

N.B. Diesel, reinforcing steel, and cement will not be accepted as special material.

*Contractor**Witness 1**Witness 2**Employer**Witness 1**Witness 2*

C1.3 Form of Guarantee - Pro Forma

Contract No

WHEREAS **The Ephraim Mogale Local Municipality** (hereinafter referred to as the Employer") entered into, a Contract with:

.....
(Hereinafter called "the Contactor") on the day of 20.....
for **CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES** in
the **Ephraim Mogale Local Municipality** of the Limpopo Province.

AND WHEREAS it is provided by such Contract that the Contractor shall provide the Employer with security by way of a guarantee for the due and faithful fulfillment of such Contract by the Contractor;

AND WHEREAS has / have at the
request of the Contractor, agreed to give such guarantee;

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

1. The Employer shall, without reference and / or notice to us, have complete liberty of action to act in any manner authorized and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the completion date of the works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the completion date which the Employer may make, give, concede or agree to under the said Contract.
2. This guarantee shall be limited to the payment of a sum of money.
3. The Employer shall be entitled, without reference to us, to release any guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.
4. This guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.
5. Our total liability hereunder shall not exceed the Guaranteed Sum of:

.....
.....Rand (in words);

R. (in figures)

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

6. The Guarantor reserves the right to withdraw from this guarantee by depositing the Guaranteed Sum with the beneficiary, whereupon our liability hereunder shall cease.
7. We hereby choose our address for the serving of all notices for all purposes arising here from as

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

IN WITNESS WHEREOF this guarantee has been executed by us at
on this day of 20

Signature

Duly authorized to sign on behalf of

Address
.
.....
.....

As witnesses:

1

2



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

C1.4: Agreement with Adjudicator

This agreement is made on the.....day of 20.....between: the Employer
(name of company / organisation).....
of (address).....
.....and the
Contractor
(name of company / organisation)
of (address).....
..... (hereinafter
called **the Parties**)

and

(name).....
of (address)
.....
(hereinafter called **the Adjudicator**)

Disputes or differences may arise/have arisen* between the Parties under a Contract dated.....
and known as Contract No.....
(Contract title).....

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

IT IS NOW AGREED as follows:

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

SIGNED by:

(Signature): (Signature): (Signature):
Name: Name: Name:

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

who warrants that he/ she is
duly authorised to sign for and
on behalf of the **First Party** in
the presence of

who warrants that he/ she is
duly authorised to sign for
and on behalf of the **Second
Party** in the presence of

the **Adjudicator** in the
presence of

Witness:
(Signature).....

Name:

Address:

.....

.....

Date:

Witness:
(Signature).....

Name:

Address:

.....

.....

Date:

Witness:
(Signature).....

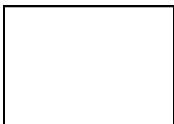
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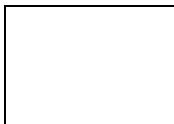
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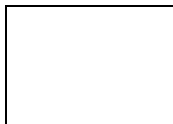
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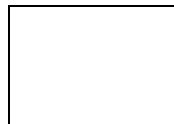
Contractor



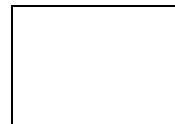
Witness 1



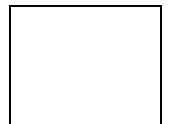
Witness 2



Employer



Witness 1



Witness 2

C1.5: Agreement In Terms Of Section 37(2) Of The Occupational Health And Safety Act No 85 Of 1993

THIS AGREEMENT is made between The EPHRAIM MOGALE Local Municipality represented by the Accounting Officer.

(hereinafter called the EMPLOYER of the one part, herein represented by:

.....
.....

in his capacity as:

;

AND:

(hereinafter called the CONTRACTOR) of the other part, herein represented by

.....
.....

in his capacity as:

duly authorized to sign on behalf of the Contractor.

WHEREAS the CONTRACTOR is the Mandatory of the EMPLOYER in consequence of an agreement between the CONTRACTOR and the EMPLOYER in respect of

CONTRACT: CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES in the Ephraim Mogale Local Municipality of the Limpopo Province

AND WHEREAS the EMPLOYER and the CONTRACTOR have agreed to enter into an agreement in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993, as amended by OHSA Amendment Act No 181/1993 (hereinafter referred to as the ACT);

NOW THEREFORE the parties agree as follows:

1. The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.
2. The CONTRACTOR undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations: Provided that should the EMPLOYER have prescribed certain arrangements and procedures that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.
3. The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations, and the CONTRACTOR expressly absolves the EMPLOYER and the Employer's CONSULTING ENGINEERS from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the contract.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

4. The CONTRACTOR agrees that any duly authorized officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with his undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.
5. The CONTRACTOR shall be obliged to report forthwith to the EMPLOYER any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

Thus signed at for and on behalf of the **CONTRACTOR**

on this the day of 20.....

SIGNATURE:

.....

NAME

AND

SURNAME:

.....

CAPACITY:

.....

WITNESSES: 1.

2.

Thus signed at for and on behalf of the **EMPLOYER** on this

the day of 20.....

SIGNATURE:

.....

NAME

AND

SURNAME:

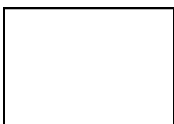
.....

CAPACITY:

.....

WITNESSES: 1.

2.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

EPHRAIM MOGALE LOCAL MUNICIPALITY CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES

C2.1: PRICING INSTRUCTIONS

1. GENERAL

The pricing instructions describe the criteria and assumptions which will be assumed in the Contract that the Bidder has taken into account when developing his prices. The Bills of Quantities record the Contractor's rates for providing supplies, services, engineering and construction works in accordance with the Scope of Work.

The terms of payment and the provisions for price adjustment, if applicable, are established in the Contract Data. These items are not described in the Pricing Data.

The Bidder's obligations in pricing the Bid offer and the Employer's undertakings in the checking and correction of arithmetical errors are dealt with in the Standard Conditions of Bid contained in Annexure F of SANS 294, as amended in and read in conjunction with the Bid Data.

2. DOCUMENTS MUTUALLY EXPLANATORY

The documents forming the Contract are to be taken as mutually explanatory of one another. The Bill of Quantities forms an integral part of the Contract Documents and shall be read in conjunction with the Bid Data, Contract Data, Scope of Work, Site Information General and Special Conditions of Contract, the Specifications and the Drawings.

3. DEFINITIONS

For the purpose of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:

Unit	:	The unit of measurement for each item of work as defined in the pricing schedule and bill of quantities.
Quantity	:	The number of units of work for each item
Rate	:	The payment per unit of measurement at which the Bidder Bids to do the work.
Amount	:	The product of the quantity and the rate Bided for an item
Sum	:	An amount Bided for an item, the extent of which is described in the Schedule of Quantities, the specifications or elsewhere but the quantity of work of which is not measured in any units.
Prime Cost (or PC item)	:	A sum fixed by the Engineer and entered in the Schedule of Quantities as the net sum provided to cover the cost of specific goods or materials to be supplied under the contract, or the net sum to be paid by the Contractor to merchants or others for such articles or materials. ¹
Provisional Sum	:	A sum of money fixed by the Engineer and entered in the Schedule of Quantities to provide for work not defined at the Bid stage and includes any allowance specifically made for unforeseen contingencies. ¹
Extra Over (or EO)	:	Qualifies an operation (or combination of operations) which is common in a varying degree to a number of other operations and which is scheduled once as "extra over" those other operations in order to avoid a multiplicity of items each reflecting the degree to which the common operations applies. The term "extra over" invariably



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

denoted double measurement, no deduction being made from one on account of the other.¹

4. **DESCRIPTIONS**

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 Specification or Scope of Work, as applicable, shall prevail.

5. **REFERENCES**

The general conditions of contract, the special conditions of contract (if any), the specifications (including the project specification) and the drawings are to be read in conjunction with the schedule of quantities.

Descriptions in the schedule of quantities are abbreviated and the schedule has been drawn up generally in accordance with the Scope of Works. Should any requirement of the measurement and payment clause of the applicable standardised specification², or the project specification², or the particular specification(s)² conflict with the terms of the schedule the requirement of the standardised, project or particular specification, as applicable, shall prevail.

Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made for waste.

The prices and rates to be inserted in the schedule of quantities are to be the full inclusive prices to the Employer for the work described under the several items, value added tax excluded. Such prices shall cover all costs and expenses that may be required in and for the construction 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 quotation is based.

A price or rate is to be entered against each item in the schedule 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 schedule

6. **UNITS OF MEASUREMENT**

The units of measurement indicated in the Bill of Quantities are metric units.

The following abbreviations are used in the Bill of Quantities:

%	=	per cent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

km	=	kilometre
km-pass	=	kilometre-pass
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
MN	=	meganewton
MN-m	=	meganewton-metre
MPa	=	megapascal
kPa	=	kilopascal
m ²	=	square metre
m ³	=	cubic metre
m ³ -km	=	cubic metre-kilometre
m ² -pass	=	square metre-pass
no	=	number
PC sum	=	Prime Cost sum
Prov Sum	=	Provisional Sum
sum	=	lump sum
t	=	ton (1 000 kg)
R/only	=	Rate only
W/day	=	Work day

7. **NET MEASUREMENTS**

Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for off-cuts and waste.

8. **QUANTITIES**

The quantities set out in these Bills of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bills of Quantities.

The Contract Amount to be determined in accordance with the conditions of contract identified in the Contract Data shall be computed from the actual quantities of authorized work done, value at rates determined in terms of the Contract Data, against the respective items in the Bill of Quantities.

9. **CURRENCY**

All rates and sums of money quoted in the Bill of Quantities shall be in Rand and whole cents. Fractions of a cent shall be discounted.

10. **VALUE ADDED TAX**

Value Added Tax shall be excluded from the rates and sums contracted for the various items of work included in the Bill of Quantities. VAT will be added as a single entry to the summary.



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

11. RATES AND PRICES

11.1 General

- a) The Contractor must price each item in the Bill of Quantities in BLACK INK. Reproduced computer printouts of the Bills of Quantities will not be acceptable.
- b) The rates and prices to be inserted in the Bill of Quantities shall cover all the services and incidentals 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 Bid 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.
- c) Where the Contractor is required to furnish detailed drawings and designs or other information in terms of the Contract Data, all costs thereof shall be deemed to have been provided for and included in the unit rates and sum amounts contracted for the items scheduled in the Bill of Quantities. Separate additional payments will not be made.
- d) 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. The Contractor will not be paid for items against which no rate or lump sum has been entered in the Bill of Quantities.
- e) Should the Contractor group a number of items and contract one lump sum for such group of items, this single lump sum shall apply to that group of items and not to each individual item.
- f) Should the Contractor indicate against any item that compensation for such item is included in another item; the rate for the item included in another item shall be deemed nil.
- g) A submission may be regarded as non-responsive if any rates or lump sums in the Bill of Quantities are, in the opinion of the Employer, unreasonable or out of proportion.

11.2 "Rate only" items

The Contractor shall fill in a rate (in the rate column) against all items where the words "rate only" appear in the Amount column, which rate will constitute payment for work which may be done in terms of this item. Such "rate-only" items are used where it is estimated that little or no work will be required under the item or where the item is to be considered as an alternative to another item for which a quantity is given.

11.3 Arithmetic

Excepting where Sum Amounts are required or where Provisional Sums have been indicated, the Contractor shall enter an applicable rate in the Rate Column of the Bill of Quantities for



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

each scheduled item. He shall also enter an appropriate sum in the Amount column for each scheduled item, by determining in the applicable line item the product of the Quantity and the Unit Rate.

If there is an error in the line item resulting from the product of the unit rate and the quantity, the rate shall be binding and the error of extension as entered in the Bid offer will be corrected by the Employer in determining the Contract Price.

Where there is an error in addition, either as a result of other corrections required by this checking process or in the Bidder's addition of prices, such error will be corrected by the Employer in determining the Contract Price.

12. VARIATION IN TEXT

No alteration, erasure or addition is to be made in the text of the Bill of Quantities. Should any alteration, erasure or addition be made, it will not be recognized; the original wording of the Bill of Quantities will be adhered to.

*Contractor**Witness 1**Witness 2**Employer**Witness 1**Witness 2*

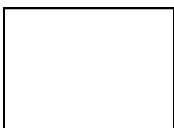
PART C2.2

BILL OF QUANTITIES

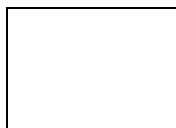
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**CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A
BLOCK OF OFFICES**

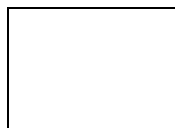
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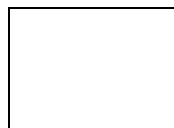
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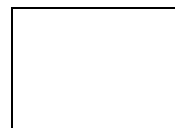
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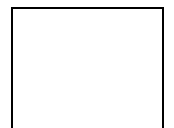
Witness 2



Employer



Witness 1



Witness 2

Item	Description	Unit	Quantity	Rate	Amount
	SECTION NO. A :PRELIMINARIES				
	NOTE:				
1	Allow for all preliminaries and general responsibilities and obligations under this contract, including insurance and site establishment	Sum	1		
2	Contractor's initial obligations and contractors related items in respect of the Occupational Health and Safety Act and Construction regulations including COVID-19 pandemic and submission of the necessary document	Sum	1		
	SECTION A TOTAL CARRIED TO THE SUMARRY PAGE			Sub Total A	
	SECTION B :BUILDING WORKS				
1	Removing the roller doors	No	8		
2	Closing the opened space with brick and mortar and instal a alluminium window (TYPE PTT 1515) including Brick on edge header course lintel above windows.Window should include barglar doors,Wall thickness is 230mm	No	8		
	Increasing the existing wall heights with similar brick type	m ²	50		
3	Plastering of the newly constructed walls on the inside	m ²	200		
4	Creating of passage entrance by breaking inside wall (1,2m).smooth finish on the edges	No	9		
5	Partitioning of the for the offices using alluminium and glasses.inclusive of standard door (3,3m X 2,5m).The Contractor to take atual measurement on site	m	45		
6	Installation of ceramic tiles and skarting	m ²	280		
7	installation of office window blinds	No	16		
8	installation of new asbestos roof celing including branderings and painting	m ²	280		
9	Installation of new airconditioners 9000Btu	No	18		
10	Supply and installation of net shades on steel poles(6m each)	No	3		
11	Installation of 0,8mm Galvanised sheet iron with "chromadek" finish on one side:100 x 125mm Eaves gutters	m	15		
12	Installation of 100mm diameter rainwater downpipe (2,5m)	m	3		
	SECTION B TOTAL CARRIED TO THE SUMMARY PAGE			Sub Total B	



Contractor



Witness 1



Witness 2



Employer

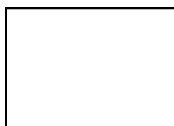


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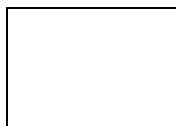


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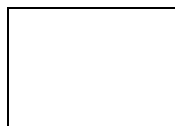
SECTION C :ELECTRICAL WORKS					
The Contractor must Supply and install the electrical supply from the main meter room to the new office building. It includes the excavation of the trench at 500mm deep and the connection of the cable on both ends. The building must be re-wired with a plug socket, light switch, light fitting and air-conditioner isolator in very office. The building will be divided in two sections and a distribution board must be provided and installed for each section. All material must be supplied and installed for the complete wiring of the new building according to SANS 10142 Part 1. On completion a Certificate of Compliance must be issued. It is anticipated that the material as listed will be required to complete the work but the list must not be considered as complete and quantities might vary on site. The list also don't include small miscellaneous items like insulation tape, screws, ferrules etc.					
1	Distrbution Bord, Steel, indoor, Surface mount with door, White, Samite rail, 44 (2 x 22) Way, with Neutral and Earth bars.	No	2		
2	Circuit breaker, 160A, Three phase, 25KA, 415V - 50Hz	No	1		
3	Circuit breaker, 100A, Three phase, 6KA, QF-3(26), 415V - 50Hz, Samite Rail, Curve 1, Circuit breaker	No	2		
4	Circuit breaker, 80A, Three phase, 6KA, QF-3(26), 415V - 50Hz, Samite Rail, Curve 2, Circuit breaker	No	2		
5	Circuit breaker, 70A, Three phase, 6KA, QF-3(26), 415V - 50Hz, Samite Rail, Curve 2, Circuit breaker	No	2		
7	Circuit breaker, 10A CBI Single phase, 3KA, QA-1(13), 240V - 50Hz, Samite Rail, Curve 2, Circuit breaker	No	6		
8	Circuit breaker, 20A CBI Single phase, 3KA, QA-1(13), 240V - 50Hz, Samite Rail, Curve 2, Circuit breaker	No	22		
9	Circuit breaker, 5A CBI Single phase, 3KA, QA-1(13), 240V - 50Hz, Samite Rail, Curve 2, Circuit breaker	No	1		
10	Earthlegage, 80A CBI Earthleakage, SF15C, 240 V, 6 KA, 30 mA, Single phase (L + N),	No	2		
11	Wall box extention, 4 x 4, metal, white, with close back	No	34		
12	Wall box extention, 2 x 4, metal, white, with close back	No	16		
13	Isolator, 2 pole, 4 x 4, 30A with steel face cover, white	No	16		
15	Switched Socket Outlet, Double, Double switched, 4 x 4 with steel face cover plate, white.	No	18		
16	Light switch, one lever, one way, with steel face cover for 2 x 4 wall box.	No	16		
17	Pvc Inspection box, 8 way, round, 8 break out entry points, 2 x 5mm screw entry points for deksel.	No	25		
18	Pvc condute pipe, 20mm x 4m. SABS (4 meter legth)	Length	200		
19	Pvc femail adaptor, 20mm. SABS	No	150		
20	Pvc coupling, 20mm. SABS	No	100		
21	20mm Galvinaied saddels SABS.	No	150		
23	Fitting, Fluorescent, LED ,5ft (1,5m) 240 v , Wide Body (72 - 100mm wide x 38mm high	No	16		
24	Globe, Fluorescent LED Tubes Frosted, 5 Foot (1.5m) Cool White, 2000 lm, 6500 K, 22 W	No	32		
25	Fitting, Round Bulkhead, Round Luminaires IP55, Waterproof, Dia 200mm x H 150mm, W	No	5		
26	Globe, 11 Watt Energy Saver ES (E27) Globes.	No	5		
27	Sieling spring toggle screw, M 5 X 65mm. (Butterfly Screw)	No	100		
28	Single Wire, 1,5mm PVC Red.	m	200		
29	Single Wire, 1,5mm PVC black.	m	200		
31	Single Wire, 1,5mm PVC Green and Yellow.	m	200		
32	Single Wire, 1,5mm PVC White.	m	100		
33	Single Wire, 2,5mm PVC Red.	m	600		
34	Single Wire, 2,5mm PVC Black.	m	600		
35	Single Wire, 2,5mm PVC Green and Yellow.	m	600		
36	Nail in anchors (Tru-fix), Ø6mm x 55mm	No	400		
37	Day night switch, National day night switch to fit nema base.	No	1		
39	Day night switch, Nema base for day night switch.	No	1		
40	Contactors, LC1 D25 M7 Telemecanique, 4Pole.	No	1		
41	Cable swa 16mm x 4core Cu Pvc swa pvc	m	60		
42	Wire, 10mm BCEW	m	60		
43	Cable, 50mm², 4 core, Cu, PVC, SWA, PVC, 600V	m	80		
44	Wire, 35mm BCEW	m	80		
45	Glands, Steel, No 2, With Pvc Shroud.	No	4		
47	Glands, Steel, No 3, With Pvc Shroud.	No	2		
48	Glue, PVC, 200ml	No	1		
SUMMARY C CARRIED OVER TO THE SUMMARY PAGE				Sub Total C	



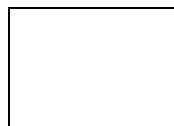
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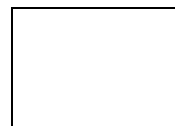
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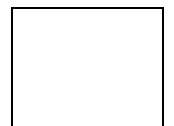
Witness 2



Employer

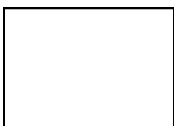


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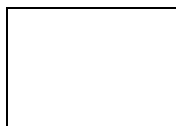


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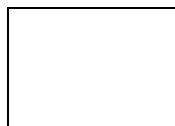
SUMMARY PAGE					
1	PRELIMINARIES				R
2	BUILDING				R
3	ELECTRICAL WORKS				R
	Sub Total D				R
4	Contingencies				
	Allow for Contingencies @ R80 000,00				
	Sub Total E				
	ADD VAT @ 15%				
	TOTAL CARRIED TO FORM OF OFFER			TOTAL	



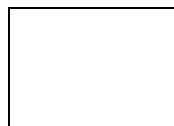
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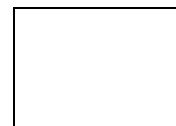
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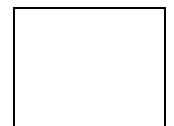
Witness 2



Employer



Witness 1



Witness 2

EPHRAIM MOGALE LOCAL MUNICIPALITY CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES

C3: SCOPE OF WORK

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CONVERSION OF AN EXISTING VEHICLE PARKING BUILDING INTO A BLOCK OFFICES EPHRAIM MOGALE LOCAL MUNICIPALITY

C3.2: PROJECT SPECIFICATIONS

STATUS

The Project Specification, consisting of two parts, forms an integral part of the contract and supplements the Standard Specifications.

Part A contains a general description of the works, the site and the requirements to be met.

Part B contains variations, amendments and additions to the Standardized Specifications and, if applicable, the Particular Specifications.

In the event of any discrepancy between a part or parts of the Standardized or Particular Specifications and the Project Specification, the Project Specification shall take precedence. In the event of a discrepancy between the Specifications, (including the Project Specifications) and the drawings and / or the Bill of Quantities, the discrepancy shall be resolved by the Engineer before the execution of the work under the relevant item.

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

PART A: GENERAL

PS-1 PROJECT DESCRIPTION

The Ephraim Mogale Local Municipality needs to convert a section of parking lot into office space.

The works will comprise of the following

Site clearance

Demolishing and repairing

Removal and re-installation of the roof structures

Painting

Plastering

Glazing.

Alluminium works

Ceiling and skirting

Windows and doors

3.1 Roadwork's

The surfacing will be 30mm Asphalt.

pavement structure will be as is and clarification can be obtained from the Roads and Storm Water Department.

3.2 Structures

No major structure was identified.

3.3 Ancillary works

The following ancillary works shall form part of this contract:

- installation of kerbing where damaged or removed
- construction of concrete side drains if damaged or removed

3.4 Traffic

It is the N11 with very high traffic volumes and an internal street in a residential area with low traffic volumes.

3.5 Nature of ground conditions and subsoil conditions

In general the materials in the cable route can be utilized again for back filling but it is estimated that about 25% might be unsuitable. The route is along an existing cable route or just adjacent to it and it is not anticipated that blasting will be necessary.

3.6 Climatic conditions

This route falls within the summer rainfall region of Limpopo in South Africa, with the rainy season lasting from approximately November to April.

Temperature:

This area experiences a hot semi-arid climate with an average temperature of 19.9° C. Summer days are hot with temperatures varying between 26.3° - 27.8° C in October to March. Summer night temperatures are cool to mild between 13.4° - 16.6° C in October to March. Winter day temperatures are mild to hot varying between 19.6° - 25.2° C in April to September. Winter nights are cold with temperatures of 4.3° - 12.1° C in April to September.

Rainfall:

The average rainfall up to 2004 (10 years) is 542.7mm/year with a maximum of 959mm in 1996 and a minimum of 196mm in 2003.

3.7 Labour recruitment conditions

Local labour is to be used and the employment should be according to EPWP guidelines. A Community liaison officer (C.L.O.) must be appointed (which shall be remunerated under the contract. Remuneration must at least be R4 500/month). The CLO shall be in full time employ of the contract. The duties of the C.L.O. shall consist inter alia of the following:

- To be available on site daily between the hour of 07:00 and 17:00 and at other times as the need arises. His normal working day will extend from 07:00 in the morning until 17:00 in the afternoon.
- To communicate daily with regard to number and skills, to facilitate in labour disputes and to assist in their resolution.
- To attend all meetings in which the community and/or labour are present or are required to be represented.
- To attend all project meetings to report on labour.
- To assist in the identification and screening of laborers from the community in accordance with the contractor's requirements.
- To advise and inform temporary laborers of their conditions of employment and to inform temporary laborers as early as possible when their period of employment will be terminated.
- To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- To keep a daily written record of his interviews and community liaison, labour force etc.
- To attend monthly site meetings and report in writing on labour and contract matters.
- Keeping a data base of available labour.
- All such other duties as agreed upon between all parties concerned.
- Compile a list of available skills in the area (skills audit).

4.11 Construction in confined Areas

It may be necessary for the Contractor to work within confined areas. Except where provided for in the specifications, no additional payment shall be made for work done in restricted areas. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined

areas largely depends on the Contractor's constructional plant.

However, the Contractor shall note that, unless provided for in terms of the scheduled payment items in the COLTO Standard Specifications or these project specifications, measurement and payment shall be in accordance with the specified cross sections and dimensions only, irrespective of the method used for achieving these cross sections and dimensions, and that the Bided rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions, and that no extra payment shall be made nor shall any claim for additional payment be considered in such cases.

PS-4 CONSTRUCTION AND MANAGEMENT REQUIREMENTS

4.1 General

The Contractor is referred to **SANS 1921: 2004 parts 1, 2 and 3: Construction and Management Requirements for Works Contracts**. These specifications shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Certain aspects however require further attention as described hereafter.

4.2 Drawings (Read with SANS 1921 – 1: 2004 clauses 4.1.7; 4.1.11 and 4.1.12)

The reduced drawings which form part of the Bid documents shall be used for Bidding purposes only and is attached at the back of this document under section C4.3.

The contractor shall be supplied with three complete paper copies of the construction drawings free of charge. The Contractor shall at his own expense re-produce further paper prints required for the construction of the work.

At the completion of the Contract, the Contractor shall return to the Engineer all drawings, provided or made, during the contract period.

Any information which the Contractor has control over and which is required by the Resident Engineer to complete the as-built drawings shall be made available to the Resident Engineer before the Certificate of Completion is issued.

Only written dimensions may be used. Dimensions are not to be scaled from drawings unless ordered by the Engineer. The Engineer will supply all figures / dimensions which are not shown on the drawings. The levels or dimensions given on the drawings are subject to confirmation on site. The Contractor shall submit all levels and dimensions to the Engineer for confirmation before he commences with any structural construction work. The Contractor shall also check all clearances which are given on the drawings and inform the Engineer of any conflicting dimensions.

Any destination names on road signs which may be indicated on the drawings are subject to confirmation by the Engineer before these signs are manufactured.

4.3 Responsibilities for design and construction (Read with SANS 1921 – 1:2004 Clause 4.2)

4.3.1 The responsibility strategy followed in this contract shall be A.

4.3.2 The Municipality is responsible for the design.

4.4 Planning, Programme and Method Statements (Read with SANS1921-1:2004 clause 4.3)

4.4.1 Preliminary programme

The Contractor shall include with his Bid a programme in the form of a simplified bar chart with sufficient details to show clearly how the works will be performed within the time for

completion as stated in the Contract Data.

The Contractor shall be deemed to have allowed fully in his Bided rates and prices as well as in his programme for all possible delays due to normal adverse weather conditions and special non-working days as specified in the Special Conditions of Contract, in the Project Specifications and in the Contract Data.

The following constraints shall be taken into account in preparing the preliminary construction programme which must be submitted with the Bid. These same constraints shall apply to the final construction programme.

- a) The Contract will be as Bided by the contractor. Plant and personnel requirements to complete the project must be incorporated in the Bid and shown on the programme.
- b) A high standard of traffic accommodation
- c) The relocation of services
- d) Ancillary works by Emerging Contractors

4.4.2 Programme in terms of Clause 5.6 of the General Conditions of Contract

It is essential that the construction programme, which shall conform in all respects to Clause 5.6 of the General Conditions of Contract, be furnished within the time stated in the Contract Data. The preliminary programme to be submitted with the Bid shall be used as basis for this programme..

The following must be stated on the programme:

- (a) 2 weeks must be allocated at the start of the project for the setting out of existing services and confirmation of such services. No work will be allowed prior to the confirmation process being completed.
- (b) The quantity of work applicable to each bar item as well as the rate at which the work will be completed.
- (c) A budget of the value of completed work, month by month, for the full contract period.
- (d) The critical path.
- (e) Work to be undertaken by Local Contractor (if applicable)
- (f) Schedule of plant and recourses to be utilized

The Contractor's attention is also drawn to clause 5.7 of the General Conditions of Contract 2010.

4.4.3 Time for Completion

The Time for Completion shall be **04 months** as indicated under section C1.2. Contract Data.

4.4.4 Delay in Completion

The Contractor shall organise the Works in such a manner that no delays occur. Delays due to faulty organisation or lack or shortage of materials or labour or co-operation with other parties or to any other cause within the control of the Contractor will not be counted and full power is reserved by the Engineer to order the Contractor to expedite the work should the work, in the opinion of the Engineer, not progress in a satisfactory way.

4.5 Quality Assurance (QA) (Read with SANS 1921 – 1: 2004 clause 4.4)

The Contractor will be solely responsible for the production of work that complies with the Specifications to the satisfaction of the Engineer. To this end it will be the full responsibility of the Contractor to institute an appropriate Quality Assurance (QA) system on site. The Engineer will audit the Contractor's quality assurance (QA) system on a regular basis to verify that adequate independent checks and tests are being carried out and to ensure that the Contractor's own control is sufficient to identify any possible quality problems which could cause a delay or failure.

The Contractor shall ensure that efficient supervisory staff, the required transport, instruments, equipment and tools are available to control the quality of his own workmanship in accordance with his QA-system. His attention is drawn to the fact that it is not the duty of the Engineer or the Engineer's representative to act as foreman or surveyor.

4.6 Management and disposal of water *(Read with SANS 1921 – 1 : 2004 clause 4.6)*

The Contractor shall pay special attention to the management and disposal of water and storm water on the site. It is essential that all completed works or parts thereof are kept dry and properly drained. Claims for delay and for repair of damage caused to the works as a result of the Contractor's failure to properly manage rain and surface water, will not be considered.

4.7 Earthworks *(Read with SANS 1921 – 1 : 2004 clause 4.10)*

4.7.1 Borrow pits and spoil areas

The borrow pits to be used for this contract shall be pointed out at the Site Inspection. The Contractor shall be permitted to use only those borrow pits approved by the Engineer.

The spoil sites shall be determined on site in conjunction with the Engineer, the PSC, and the local communities. The Contractor shall be permitted to use only those spoil areas approved by the Engineer.

Should the Contractor wish to use any other spoil area for the disposal of soil, rubble, vegetation, etc, its use shall be subject to the approval of the Engineer and the landowner.

4.8 Testing

Testing according to SANS 10198 – 13 with certification.

4.8.1 Process control

The Contractor shall arrange for his own process control.

4.8.2 Acceptance control

The Contractor will submit the proof that material complies with SABS standards as well as the test certificates for the cable joints and termination.

4.9 Site Establishment *(Read with SANS 1921 – 1 : 2004 clause 4.14)*

4.9.1 Contractor's camp site and depot

The Contractor is responsible to provide a suitable site for his camp and to provide accommodation for his personnel and laborers. If the Employer can make any specific site available to the Contractor, such site will be pointed out to the Contractor.

Possible locations for a campsite shall be pointed out at the Site inspection. The Contractor shall conform to all local authority, environmental and industrial regulations.

The Contractor shall make his own arrangements concerning the supply of electrical power and all other services. No direct payment shall be made for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts Bided for the various items of work for which these services are required.

The Contractor shall provide security watchmen for the contract as he deems fit at no extra cost for the Employer. The Contractor must ensure that all his employees as well as the employees of his subcontractors are able to identify themselves as members of the construction team.

4.9.2 Accommodation of Employees

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

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

No informal housing or squatting will be allowed.

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

4.10 Survey beacons (Read with SANS 1921 – 1 : 2004 clause 4.15)

The Contractor shall take special precautions to protect all permanent survey beacons or pegs such as bench-marks, stand boundary pegs and trigonometrical beacons, regardless whether such beacons or pegs were placed before or during the execution of the Contract. If any such beacons or pegs have been disturbed by the Contractor or his employees, the Contractor shall have them replaced by a registered land surveyor at his own cost.

4.11 Existing Services (Read with SANS 1921 – 1: 2004 clause 4.17)

The Contractor shall make himself acquainted with the position of all existing services before any excavation or other work likely to affect the existing services is commenced. It is the contractors responsibility to identified services that will interact with the construction work. The contractor will be responsible to do the application and negotiation on the relocation of the sifting of services.

The Contractor will be held responsible for any damage to known existing services caused by or arising out of his operations and any damage shall be made good at his own expense. Damage to unknown services shall be repaired as soon as possible and liability shall be determined on site when such damage should occur.

Services belonging to the following service owners will be encountered.

SERVICE OWNER	TYPE OF SERVICE
Ephraim Mogale Local Municipality	Electrical cables
Telkom(Open Serve)	Telephone lines and Cables
Sekhukhune District Municipality	Waterlines and sewer reticulation
Sekhukhune District Municipality	Bulk water lines
Ephraim Mogale Local Municipality	Land owner
SANRAL	Road N11 and road reserve
Ephraim Mogale Local Municipality	Ewoud Malan and Industria Streeta
Private owners	Fence line

A provisional amount is included in the bill of quantities for the protection and/or shifting of services.

Two weeks prior to commencing construction activities in a particular area, the Contractor shall also diligently enquire of local landowners as to whether there are any other known services which have not been shown on the drawings but which may be affected by the construction activities in that area, and any such services shall be brought to the attention of the Engineer immediately. The contractor shall make provision in his programme for the location and/or shifting of services.

The Contractor shall take note of the requirements of clause 1202 of the standard specifications with regard to services.

4.12 Health and Safety *(Read with SANS 1921 - 1: 2004 clause 4.18)*

4.12.1 General statement

It is a requirement of this contract that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly affected by his activities, are not exposed to hazards to their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the Occupational Health and Safety Act (OHSA) No 85 and Amendment Act No 181 of 1993, and the OHSA 1993 Construction Regulations 2014 issued on 7 February 2014 by the Department of Labour.

For the purpose of this contract the Contractor is required to confirm his status as mandatory and employer in his own right for the execution of the contract by entering into an agreement with the Employer in terms of the Occupational Health and Safety Act in the form as included in section C1.5.

4.12.2 Health and Safety Specifications and Plans

(a) Employer's Health and Safety Specification

The Employer's Health and Safety Specification is included in Section C3.3, of the Bid documents as part of the Particular Specifications.

(b) Bidder's Health and Safety Plan

The Bidder shall submit with the bid his own documented Health and Safety Plan he proposes to be implement for the execution of the work under the contract. The Health and Safety Plan must at least cover the following:

- (i) a proper risk assessment of the works, risk items, work methods and procedures in terms of Regulations 9 to 30;
- (ii) pro-active identification of potential hazards and unsafe working conditions;
- (iii) provision of a safe working environment and equipment;
- (iv) statements of methods to ensure the health and safety of subcontractors, employees and visitors to the site, including safety training in hazards and risk areas (*Regulation 7*);
- (v) monitoring health and safety on the site of works on a regular basis, and keeping of records and registers as provided for in the Construction Regulations;
- (vi) details of the Construction Supervisor, the Construction Safety Officers and other competent persons he intends to appoint for the construction works in terms of Regulation 8 and other applicable regulations; and
- (vii) details of methods to ensure that his Health and Safety Plan is carried out effectively in accordance with the Construction Regulations 2014.

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

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

4.12.3 Cost of compliance with the OHSA Construction Regulations

The rates and prices Bided by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract.

Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable for penalties as provided in the Construction Regulations and in the Employer's Health and Safety Specification.

4.13 Requirements for Accommodation of Traffic *(Read with SANS 1921 - 2 : 2004)*

4.13.1 General

The Contractor will be responsible for the safe and easy passage of public traffic past and on sections of roads of which he has occupation or where work has to be done near traffic. The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

Accommodation of traffic, where applicable shall comply with SANS 1921-2: 2004: Construction and Management Requirements for Works Contracts, Part 2: Accommodation of Traffic on Public Roads occupied by the Contractor. The Contractor shall obtain this specification from Standards South Africa if accommodation of traffic will be involved on any part of the construction works.

4.13.2 Basic Requirements

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

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

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

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

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

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

4.13.3 Payment

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

4.14 Management of the environment *(Read with SANS 1921 - 1 : 2004 clause 4.19)*

Respect for the environment is an important aspect of this contract and the Contractor shall pay special attention to the following:

4.14.1 Natural Vegetation

The Contractor shall confine his operation to the limits of the road reserve for the purpose of constructing the works and where applicable detours, shall be sited in consultation with the Engineer and the local communities.

Only those trees and shrubs directly affected by the works and such others as the Engineer may direct in writing shall be cut down and stumped. The natural vegetation, grassing and other plants shall not be disturbed other than in areas where it is essential for the execution of the work or where directed by the Engineer.

4.14.2 Fires

The Contractor shall comply with the statutory and local fire regulations. He shall also take all necessary precautions to prevent any fires. In the event of fire the Contractor shall take active steps to limit and extinguish the fire and shall accept full responsibility for damages and claims resulting from such fires which may have been caused by him or his employees.

4.14.3 Environmental Management Plan

In addition to the above all requirements according to the Environmental Management Plan as detailed in C3.3, Particular Specifications, will be adhered to.

PS-5 Expanded Public Works Programme (EPWP) labour intensive specification

5.1. Labour Regulations

5.1.1 Payment for the labour-intensive component of the works

Payment for works identified in the Project Specifications as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the scope of work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

5.1.2 Applicable labour laws

The Ministerial Determination for Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° R347 of 4 May 2012, as reproduced below, shall apply to works described in the scope of work as being labour.

5.1.3 Introduction

This document contains the standard terms and conditions for workers employed in elementary occupations on a project (EPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a EPWP.

In this document –

- (a) “department” means any department of the State, implementing agent or contractor;
- (b) “employer” means any department, implementing agency or contractor that hires workers to work in
elementary occupations on a EPWP;
- (c) “worker” means any person working in an elementary occupation on a EPWP;
- (d) “elementary occupation” means any occupation involving unskilled or semi-skilled work;
- (e) “management” means any person employed by a department or implementing agency to administer or
execute an EPWP;
- (f) “task” means a fixed quantity of work;
- (g) “task-based work” means work in which a worker is paid a fixed rate for performing a task;
- (h) “task-rated worker” means a worker paid on the basis of the number of tasks completed;

- (i) “time-rated worker” means a worker paid on the basis of the length of time worked.

5.1.4 Terms of Work

- 5.1.4.1 Workers on a EPWP are employed on a temporary basis or Contract Basis.

5.1.5 Normal Hours of Work

- 5.1.5.1 An employer may not set tasks or hours of work that require a worker to work–

- (a) more than forty hours in any week
- (b) on more than five days in any week; and
- (c) for more than eight hours on any day.

- 5.1.5.2 An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.

- 5.1.5.3 A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

5.1.6 Meal Breaks

- 5.1.6.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.

- 5.1.6.2 An employer and worker may agree on longer meal breaks.

- 5.1.6.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

- 5.1.6.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

5.1.7 Special Conditions for Security Guards

- 5.1.7.1 A security guard may work up to 55 hours per week and up to eleven hours per day.

- 5.1.7.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

5.1.8 Daily Rest Period

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

5.1.9 Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

5.1.10 Sick Leave

- 5.1.10.1 Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
- 5.1.10.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.
- 5.1.10.3 A worker may accumulate a maximum of twelve days' sick leave in a year.
- 5.1.10.4 Accumulated sick-leave may not be transferred from one contract to another contract.
- 5.1.10.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- 5.1.10.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
- 5.1.10.7 An employer must pay a worker sick pay on the worker's usual payday.
- 5.1.10.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
 - (a) absent from work for more than two consecutive days; or
 - (b) absent from work on more than two occasions in any eight-week period.
- 5.1.10.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- 5.1.10.10 A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

5.1.11 Maternity Leave

- 5.1.11.1 A worker may take up to four consecutive months' unpaid maternity leave.
- 5.1.11.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.
- 5.1.11.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
- 5.1.11.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.
- 5.1.11.5 A worker may begin maternity leave –
 - (a) four weeks before the expected date of birth; or
 - (b) on an earlier date –
 - (i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
 - (ii) if agreed to between employer and worker; or
 - (c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

- 5.1.11.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

5.1.12 Family responsibility leave

- 5.1.12.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -

- (a) when the employee's child is born;
- (b) when the employee's child is sick;
- (c) in the event of a death of –
 - (i) the employee's spouse or life partner;
 - (ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

5.1.13 Statement of Conditions

- 5.1.13.1 An employer must give a worker a statement containing the following details at the start of employment –

- (a) the employer's name and address and the name of the EPWP;
- (b) the tasks or job that the worker is to perform; and
- (c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
- (d) the worker's rate of pay and how this is to be calculated;
- (e) the training that the worker will receive during the EPWP.

- 5.1.13.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

- 5.1.13.3 An employer must supply each worker with a copy of these conditions of employment.

5.1.14 Keeping Records

- 5.1.14.1 Every employer must keep a written record of at least the following –

- (a) the worker's name and position;
- (b) in the case of a task-rated worker, the number of tasks completed by the worker;
- (c) in the case of a time-rated worker, the time worked by the worker;
- (d) payments made to each worker.

- 5.1.14.2 The employer must keep this record for a period of at least three years after the completion of the EPWP.

5.1.15 Payment

- 5.1.15 .1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

- 5.1.15.2 a worker may not be paid less than the minimum wage rate of **R150.00** per day or per task. The minimum wage rate for the CLO is **R4 500** This will be adjusted annually on the 1st of November in line with inflation (Available CPI as provided by StatSA six (6) weeks before implementation)

- 5.1.15 .3 A task-rated worker will only be paid for tasks that have been completed.

- 5.1.15 .4 An employer must pay a task-rated worker within five weeks of the work being completed

and the work having been approved by the manager or the contractor having submitted an invoice to the employer.

- 5.1.15 .5 A time-rated worker will be paid at the end of each month.
- 5.1.15 .6 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- 5.1.15 .7 Payment in cash or by cheque must take place –
 - (a) at the workplace or at a place agreed to by the worker;
 - (b) during the worker's working hours or within fifteen minutes of the start or finish of work;
 - (c) in a sealed envelope which becomes the property of the worker.
- 5.1.15 .8 An employer must give a worker the following information in writing –
 - (a) the period for which payment is made;
 - (b) the numbers of tasks completed or hours worked;
 - (c) the worker's earnings;
 - (d) any money deducted from the payment;
 - (e) the actual amount paid to the worker.
- 5.1.15.9 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it
- 5.1.15.10 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

5.1.16 Deductions

- 5.1.16.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
- 5.1.16.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
- 5.1.16.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.
- 5.1.16.4 An employer may not require or allow a worker to –
 - (a) repay any payment except an overpayment previously made by the employer by mistake;
 - (b) state that the worker received a greater amount of money than the employer actually paid to the worker; or
 - (c) pay the employer or any other person for having been employed.

5.1.17 Health and Safety

- 5.1.17.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
- 5.1.17.2 A worker must –
 - (a) work in a way that does not endanger his/her health and safety or that of any other person;
 - (b) obey any health and safety instruction;
 - (c) obey all health and safety rules of the EPWP;
 - (d) use any personal protective equipment or clothing issued by the employer;
 - (e) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

5.1.18 Compensation for Injuries and Diseases

- 5.1.18 .1 It is the responsibility of the contractor to arrange for all persons employed on a EPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
- 5.1.18 .2 A worker must report any work-related injury or occupational disease to their employer or manager.
- 5.1.18 .3 The employer must report the accident or disease to the Compensation Commissioner.
- 5.1.18 .4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

5.1.19 Termination

- 5.1.19.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.
- 5.1.19.2 A worker will not receive severance pay on termination.
- 5.1.19.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.
- 5.1.19.4 A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.
- 5.1.19.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

5.1.20 Certificate of Service

- 5.1.20.1 On termination of employment, a worker is entitled to a certificate stating –
 - (a) the worker's full name;
 - (b) the name and address of the employer;
 - (c) the EPWP on which the worker worked;
 - (d) the work performed by the worker;
 - (e) any training received by the worker as part of the EPWP;
 - (f) the period for which the worker worked on the EPWP;
 - (g) any other information agreed on by the employer and worker.

5.1.21 Contractor's default in payment to Labourers and Employees

Any dispute between the Contractor and labourers, regarding delayed payment or default in payment of fair wages, if not resolved immediately may compel the Employer to intervene.

The Employer may, upon the Contractor defaulting payment, pay the moneys due to the workers not honoured in time, out of any moneys due or which may become due to the Contractor under the Contract.

5.1.22 Provision of Hand tools

The Contractor shall provide his labour force with hand tools of adequate quality, sufficient in numbers and make the necessary provisions to maintain the tools in good and safe working conditions.

5.1.23 Reporting

The Contractor shall submit monthly returns/reports as specified below:

- Signed Muster rolls/pay sheets of temporary workers and permanent staff detailing the number, category, gender, rate of pay and daily attendance.
- Plant utilization returns
- Progress report detailing production output compared to the programme of works intensive and
which are undertaken by unskilled or semi-skilled workers.

9.2 Labour intensive competencies of supervisory and management staff

Contractors having a CIDB contractor grading designation of HIGHER and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2006, are registered for training towards, the skills programme outlined in Table 1.

The managing principal of the contractor, namely, a sole proprietor, the senior partner, the managing director or managing member of a close corporation, as relevant, having a contractor grading designation of 1GB, 2 GB, 3 GB and 4 GB shall have personally completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for the NQF level 2. All other site supervisory staff in the employ of such contractors must have completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, and
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, and
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e. the contractor's most senior representative that	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard

is resident on the site)			
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5.2 Employment of unskilled and semi-skilled workers in labour-intensive works – According to SANS 1914-5.

5.2.1 Requirements for the sourcing and engagement of labour.

5.2.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

5.2.1.2 The rate of pay set for the EPWP per task or per day is a minimum of **R 150.00/day or/task** as set out by the Ephraim Mogale Local Municipality.

5.2.1.3 Tasks established by the contractor must be such that:

- a) the average worker completes 5 tasks per week in 40 hours or less; and
- b) the weakest worker completes 5 tasks per week in 55 hours or less.

5.2.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 5.2.1.3.

5.2.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

- a) where the head of the household has less than a primary school education;
- b) that has less than one full time person earning an income;
- c) where subsistence agriculture is the source of income.
- d) those that are not in receipt of any social security pension income

5.2.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:

- a) 55 % women;
- b) 40% youth who are between the ages of 18 and 35; and
- c) 2% on persons with disabilities.

5.3 Specific provisions pertaining to SANS 1914-5

5.3.1 Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project.

5.3.2 Contract participation goals

5.3.2.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

5.3.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

5.3.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

5.3.4 Variations to SANS 1914-5

- 5.3.4.1 The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.
- 5.3.4.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

C3.3 PARTICULAR SPECIFICATIONS

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

SECTION PW371- B	BUILDING WORKS SPECIFICATIONS to be read with PW371 - A
SECTION EMP	ENVIRONMENTAL MANAGEMENT SPECIFICATION
SECTION OHS	OHS 1993 SAFETY SPECIFICATION

PART C3.2.1

Particular Specification

(Read with PW371-A)

This specification falls under the Scope of Work as defined in Standard for Uniformity in Construction Procurement, published by the Construction Industry Development Board (CIDB), and is based on national or international standards, where such exist.

Works: **Conversion of parking lots into Office block**

Project Number:

NOTE TO THE COMPILER

- > Make an office print-out of this part of PW371 for marking up during documentation.
- > Delete irrelevant clauses and add variations or additional requirements where necessary. Do not change heading numbers – they should correlate with PW371-A.
- > Choose the desired attribute or value where choices are separated with a double space-slash-double space. Delete unwanted attribute(s) or value(s). Asterisk (*) denotes the preferred attribute or value.
- > The specification data for SANS 2001 standards as listed in this publication is for guidance only. See Annex A of the relevant standard for the full list of specification data and follow instructions when required.
- > Where the reader is directed to <see drawings>, ensure the relevant item is shown in the drawings.
- > Dimensions presented are preferred dimensions according to the relevant SANS standard. Check availability or other dimensions with manufacturers/suppliers.
- > Delete all guidance notes (framed text) on completion (click just outside frame on text box and press <delete>).
- > Print out and hand in with drawings.

NOTE TO THE TYPIST

- > Text in this document is “styled”. All styles are listed in the Quick style box at the top of your screen under the HOME tab. Use the same styles throughout, and do not create new styles.
- > Heading 1 has autonumbering on (to keep footer text intact).
- > Heading 2 and 3 styles have autonumbering “off” to be consistent with Part A. You must number these headings manually.
- > To update the Table of Contents, click anywhere on the table to highlight and press F9.

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1 Earthworks

1.1 Site clearance

Applicable standard: SANS 2001 – Construction Works Part BS1: Site clearance

SANS 2001 standard specifications are deemed to satisfy the provisions of SANS 10400.

SANS 2001-BS1 covers removal of vegetation, fences, guard rails and posts, litter and building rubble, boulders of size up to 0,15 m³, and surface and subsurface obstructions, and demolition and removal of structures (including their basements, if any), not directly associated with or incidental to any excavation.

Specification data¹:

- ☐ designated area/site in which work is to be carried out: see drawings
- ☐ level of finished earthworks: see drawings
- ☐ site clearing activity numbers: ...

1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12

1 removal and disposal of vegetation; 2 removal and disposal of structures by means of bulldozing; 3 demolition, breaking up and removal of buildings to ground level; 4 demolition, breaking up and removal of underground structures; 5 ditto septic tanks, soak pits; 6 ditto litter, rubble, rocks on surface; 7 removal and stacking of re-useable materials; 8 removal of asphalt layers; 9 removal of paving; 10 removal of kerbs, channels, hunching; 11 scarifying, ripping to blocks <200 mm; 12 removal of disused foul water and storm water drains and water mains

- ☐ description of materials to be reused: ...

Activity 7 requires description of re use able materials

- ☐ depth of underground structures to be demolished: see drawings

Activity 4 requires depth of demolition of underground structures to be specified.

- ☐ depth for ripping or excavation: see drawings

Activity 11 requires depth for ripping or excavation to be specified

- ☐ designated sites for disposal of materials: see drawings
- ☐ designated sites for disposal of reusable materials: see drawings
- ☐ trees, turf, plants, bushes, shrubs and flora to be preserved and/or replanted: see drawings

Look up tree distance guidelines in SANS 10400-H Annex E.

- ☐ topsoil: select and stockpile

Topsoil is mostly a precious commodity.

1.2 Earthworks (general)

Applicable standard: SANS 2001-Construction works Part BE1: Earthworks (general).

SANS 2001-BE1 covers: excavation, filling, compaction and finishing of general excavations for buildings, bridges and structures, terracing, landscaping, and private railway sidings, carried out with heavy construction equipment or light construction equipment, or by hand.

Specification data:

- ☐ topsoil: select and stockpile
- ☐ areas where surplus and unsuitable materials shall be disposed of: see drawings
- ☐ areas to be topsoiled: see drawings
- ☐ areas to be grassed or vegetated: see drawings
- ☐ degree of accuracy required : II

¹ The specification data for SANS 2001 standards as listed in this publication is a selection of importance mainly for buildings. See Annex A of the relevant standard for the full list of specification data, and follow instructions when required for civil works.

Relevant standards:

SANS 10400-F Site Operations.

SANS 10400-G Excavations.

To be published: SANS 2001- Construction works Part BE2: Earthworks (small works).

2 Concrete works

2.1. Structural works (SANS 2001-CC1)

Omit this part if not relevant, or SANS 2001-CC2 Concrete Works (Minor Works) is specified.
SANS 2001-CC1 covers: structural concrete in buildings and structures where the design and supervision of reinforced, prestressed and precast concrete are under the direct control of appropriately qualified engineers and technologists. Does not cover piles, harbour and marine works, and underground works in mines.

Specification data: **materials**

☐ strength concrete grade: see drawings

10 / 15 / 20 / 25 / 30 / 40

Omit if prescribed mix concrete is specified.

Contractor is responsible for design of strength concrete.

Strength concrete is designated by its characteristic strength followed by the size of stone used in its manufacture, for example, grade 30/19 refers to a 30 MPa mix made with 19 mm stone. Stone size has little influence on strength but does affect workability and water demand.

Grades for typical applications are

10 (plain [unreinforced] concrete strip foundations, or surface beds where the slab does not serve as the final wearing surface);

15 (plain concrete strip foundations, floors on the ground that will serve as the final wearing surface);

20 (reinforced concrete subject to non-aggressive (dry) conditions; base courses of lightly loaded floors (no trucking) and one-course domestic and office floors on the ground that will serve as the final wearing surface; landscape footpaths);

25 (general reinforced concrete construction in buildings, bridges, culverts, silos, machine foundations, slab-on-the-ground foundations, unplastered walls above ground);

30 (machine foundations subject to vibration and shock; concrete roads; paving and floors on the ground to carry fork-lift trucks), precast concrete;

40 (specially watertight walls and tanks; highly stressed rc members; precast structural units; concrete subject to severe vibration and shock, abrasion and wear).

☐ prescribed mix concrete: SANS 2001-CC2 table 5 / ...

Omit if strength concrete is specified. SANS 2001-CC2 table 5 (19 mm aggregate) and table 6 (13 mm aggregate) contains generic prescribed concrete mixes for strength grade 10, 15, 20, 25, 30, or specify bespoke requirements.

☐ characteristic strength of tendon steel for prestressing: ...

☐ joint fillers, sealants, waterstops, bearings and accessories: ... / see Section 6

☐ steel joint cover plate finish: not galvanized / galvanized

off-form surfaces

☐ concrete off-form surface finish (smooth-special): steel forms, uniform texture, appearance and

Specify special off-form and exposed aggregate surfaces only with permission: timber boards, special patterned finish (hardboard, rubber, plastic), brushed, tooled, sand-blasted or aggregate transfer. See SANS 2001-CC1 table 1.

colour

construction joints

☐ type: see drawings

construction joint / movement joint / contraction joint / expansion joint

In general, in off-form surfaces, construction joints should be shown where a day's casting starts and ends, e.g. bottom and top of slab/column.

☐ joint sealing requirements: see Section 6

SANS 2001-CC1 specifies the finishing of exposed horizontal cast in situ concrete surfaces excluding industrial floors. Public ramps must have a safe gradient and frequent landings for disabled persons. Check with SANS 10400-S. See note on stairways at end of section.

- ☐ parts of the structure which need to be watertight: see drawings
- ☐ degree of accuracy required: II

precast/prestressed concrete

- ☐ surface finish required to precast units: special off-form / exposed aggregate / mosaic / ...
- ☐ prestressing particulars: ...
- ☐ order of loading and magnitude of load for each component of prestressing tendon: ...
- ☐ prestressing test requirements: ...
- ☐ position of lifting and supporting points, method of lifting, type of equipment and transport used in handling and erection of precast units: ...
- ☐ method of assembly and erection of precast units: ...
- ☐ design requirements for structural connections of precast units: ...
- ☐ degree of accuracy required: II
- ☐

additional requirements

- ☐ low-density concrete if not breeze (clinker) concrete at 800-960 kg/m³

60-160 (vermiculite) / 120-240 (perlite) / 450-720 (foamed slag) kg/m³

- ☐ form drip joint or downstand under all exposed off-form slab edges; chamfer exposed edges of off-form columns, slabs, joints etc.; use standard plastic joint formers

2.2 Minor works (SANS 2001-CC2)

Omit this part if SANS 2001-CC1 is specified.

SANS 2001-CC2 covers concrete works in foundations, slabs, stairways, masonry walls, pipelines, manholes, latrines, conservancy tanks, septic tanks and the like where the design and supervision of plain, reinforced and precast concrete are not necessarily under the direct supervision of approved, qualified engineers and technologists and no special finishes to the concrete are required. Use SANS 2001-CC1 when special finishes are required.

Specification data:

- ☐ horizontal surfaces that need to be non-skid: see drawings

2.3 Foundations (SANS 2001-CM2)

SANS 2001-CM2 covers construction requirements for strip footings, pad footings and slab-on-the-ground foundations to receive masonry walling, and the construction of lightly loaded concrete surface beds.

Specification data:

- ☐ site class designation: see drawings

R / H / C / S / P / H1 / C1 / S1 / H2 / C2 / S2 / H3

R rock; H heaving (expansive) soils; C collapsible soils; S compressible sand; P fill, dolomite, marshy areas, mine waste, very soft clays. Site class designations R, H, C, S indicate that the expected range of total soil movements arising from ground movements is such that no special precautionary measures are required to minimize the effects of differential ground movements on buildings. Number denotes higher range of movement. Behaviour of P is variable and the reason for such classification should be given in brackets, e.g. P (fill).

- ☐ foundations: in accordance with the requirements of SANS 10400-H for strip footings, slab-on-the-ground foundations or modified normal construction for category of expected damage 1 or 2 / rational design by competent person

See SANS 10400-H for geotechnical and/or structural solutions for foundations on problem soils.

- ☐ construction of steps in foundations in excess of 400 mm: see drawings

- ☐ minimum founding depth: see drawings

Required where the geotechnical report indicates a deeper requirement than that provided for in SANS 10400-H.

additional requirements

- ☐ protection against termites: SANS 10124.

2.4 Concrete floors and paving on the ground

- ☐ industrial floors: direct-finished one course slab as designed and constructed to SANS 10109 under direction of a competent person

Direct-finished one-course concrete floors on the ground are superior to concrete bases with screed or topping, and should be used if floor is to be left as is, or if to be covered with resilient floor finishes like thermoplastic tiles or carpet.

concrete

- ☐ concrete grade: see drawings

20 / 30

Show grades on drawings.

Default: (grade 20 for base courses of lightly loaded floors [no trucking] and one-course domestic and office floors on the ground that will serve as the final wearing surface, or grade 30 for paving and floors on the ground to carry fork-lift trucks) is acceptable.

damp-proof under-surface membrane

- ☐ DPM under floor area: required / not required

Dpm normally not required under external floors.

fabric reinforcement

- ☐ fabric reinforcement ref. no. 100 / ... / not required
☐ floor/paving thickness: see drawings

Floor thickness ranges between 120 and 360 mm, depending on loading, use

placing

- ☐ levels and gradients: see drawings

joints

- ☐ joint sealing: left open / sealed

Joints should be sealed when the floor is used under wet conditions, or where hygiene or dust has to be controlled.

2.5 Strongrooms

- ☐ fire rating, burglar resistance and wall thickness class: see drawings

1 / 2 / 3 / 4

Class: 1 (4h, no burglar resistance, 200 mm wall, 125 mm floor/ceiling); 2 (4h, limited burglar resistance, 300 mm); 3 (4h, medium burglar resistance, 450 mm); 4 (4h, high burglar resistance, 525 mm)

NOTE ON STAIRWAYS

The rule in SANS 10400 – M of a minimum going of 250 mm and a maximum rise of 200 mm often leads to a disregard for two other rules, i.e., “*the dimension of each step of the stairway shall be such that the sum of the going and twice the riser is not less than 570 mm and not more than 650 mm*”, and “*any stairway ... shall have dimensions appropriate to its use*” (NBR part M Stairways). A maximum rise of 180 and a minimum going of 280 is a more comfortable and safer proportion and should be used in most public buildings.

The full range of a more comfortable and safer proportion would be (rise/going):

180/280 mm; 170/280 – 320 mm; 150/280 – 350 mm; 120/280

3 Masonry

3.1 Masonry Walling (SANS 2001-CM1)

SANS 2001-CM1 Masonry Walling covers requirements for masonry walls, materials, the laying of masonry units in unreinforced and reinforced applications, the building in of door and window frames, holes and chases, the securing of timber roof structures and the fixing of slips.

Specification data:

masonry units

Bricks and blocks are collectively termed *masonry units*, whether solid or hollow. A block has dimensions which satisfy any one of the following conditions: a length of 300–650 mm, width of 130–300 mm, or height of 120–300 mm.

- ☐ type: burnt clay / concrete
- ☐ masonry units: SANS 2001-CM1 clause 4.1.1.3

Omit if masonry units to SANS 227 and SANS 1215 are specified.

SANS 2001 CM1 clause 4.1.1.1 states “Masonry units shall comply with the requirements of either 4.1.1.2 (SANS 227 and SANS 1215) or 4.1.1.3”. Clause 4.1.1.3 is a generic description, which may be more practical in areas where bricks to SANS 227 are unobtainable. Specify to clause 4.1.1.3 only with permission.

burnt clay masonry units (SANS 227*2)

Omit if requirements of SANS 2001-CM1 clause 4.1.1.3 are acceptable.

- ☐ nature of face unit: hollow / solid / contractor's choice
- ☐ class of face units: FBS / FBX / FBA

Class E bricks are any class of masonry unit produced for structural or load-bearing purposes in face or non-face work, and is supplied to an agreed compressive strength e.g. FBSE2, where the number equals the nominal compressive strength in megapascals.

- ☐ nominal dimensions: 222 x 103 x 76 mm

See SANS 227 for modular sizes, e.g. 190 x 90 x 90 mm.

- ☐ colour of face units: ...

concrete masonry units (SANS 1215*)

Omit if requirements of SANS 2001-CM1 clause 4.1.1.3 are acceptable.

- ☐ nature of unit: hollow / solid
- ☐ colour of face units: ...
- ☐ nominal dimensions: 190 x 90 x 90 / 290 x 90 x 90 / 390 x 90 x 190 / 390 x 190 x 190 mm

mortar

- ☐ sand: SANS 1090*

Omit if default (clause 4.1.4.1) is acceptable.

Clause 4.1.4.1 states that “Sand shall either comply with all of the following requirements or, if required in terms of the *specification data*, the requirements of SANS 1090 for mortar sand (natural or manufactured)”

- ☐ mortar class: II

Class I mortar is *suitable* for highly stressed masonry, e.g. multi-storey loadbearing buildings; class II is *suitable* for normal loadbearing applications, including parapets, balustrades, retaining structures, freestanding and garden walls, and walls exposed to severe dampness; class III mortar (not mentioned in SANS 2001-CM1) is *suitable* for lightly stressed bearing walls where exposure to dampness is not severe, or for renovation to unburnt clay masonry walling.

- ☐ pigments for mortar: ... ; colour: ... ; other requirement(s) : ...

reinforcement

- ☐ prestressing steel (hot-rolled bars or high tensile steel wire and strand) : ...

² Asterisk (*) denotes the preferred attribute or value.

Provide particulars or omit if not required.

NOTE on metal wall ties: SANS 204 requires masonry walls enveloping habitable portions of the building fabric in all climatic zones to be cavity or insulated cavity walls. Note that existing wire tie types may not be able to be centred centrally and conform to the minimum embedment rule of 50 mm. Note that crimp wire ties are not for use on cavity walls.

work

☐ face work jointing: struck* / flush / recessed / drip

Struck (half-round) joints are denser with better resistance to water penetration. Flush joints require careful cleaning of face work. Face work includes fair face work.

☐ face work pointing shape, colour: ...

Pointing is the raking out of brickwork joints 20 mm deep, then filling with mortar, usually coloured. Joint faces can be left flush, projecting, or shaped in the same way as jointing.

☐ multi-leaf wall bond: stretcher and brickforce / English bond (header course every second course) / collar-jointed bond

SANS 2001-CM1 specifies collar-jointed walls as default. Collar-jointed walls have a narrow cavity (<25 mm) between the leaves (the collar joint) which is filled solid with mortar or grout as the work progresses (not to be confused with *grouted cavity* construction where the cavity is wider and filled with concrete). Collar-jointing is intended for walls that require an effective thickness equal to the actual overall thickness of the wall. The success of this construction depends heavily on proper supervision. Collar-jointing is not mentioned in SANS 10249 Masonry Walling.

☐ position of control and articulation joints: see drawings

additional requirements

☐ wall type: see drawings

single leaf / multileaf / cavity / insulated cavity / grouted cavity / sealed multileaf

Sealed multileaf walls (outside face of inner leaf treated with a bitumen sealer) may be used in place of cavity walls in areas of prolonged, heavy, wind-driven rains, or where wall is faced with masonry-type facings (see *Masonry-type facings*)

☐ special shape face bricks: see drawings

single bullnose / double bullnose / single cant / double cant

☐ lintels in face work: see drawings

bed joint reinforced masonry / prestressed concrete lintels / galvanized steel / wood

For timber lintels see Section 4.

☐ cavity reveals around windows/doors: open / closed / see drawings

In energy rated buildings, at cavity reveals around openings, cavity insulation should continue up to window or door frames to prevent thermal bridging, therefore “open”.

A bituminous damp-proofing type may be required where bituminous waterproofing is to be bonded to damp-proofing – see Section 8.

3.2 Glass blockwork

glass blocks

☐ nominal dimensions: ...

☐ surface pattern: ...

☐ opacity: ...

☐ colour: ...

3.3 Stone masonry

Loadbearing stone masonry. For stone cladding see *Masonry-type facings*.

☐ type: rubble / dimension stone

3.3.1 Rubble

Rubble (koppieklip) is stone with irregular faces as found in nature on or near surface.

☐ bedding of stones: set in mortar / dry set, with smaller stones to achieve stability.

3.3.2 Dimension stone

- ☐ stone type: freestone / granite / marble / slate / cast stone

Freestone (makklip) is building stone soft enough to be cut with tools and uniform enough to be carved in any direction, typically sandstone.

- ☐ face dressing: plain / polished / rusticated / vermiculated / boasted / drafted margin
- ☐ shape and size: square sawn in modular rectangular sizes / ...
- ☐ bond to homogenous pattern: random coursed / regular coursed
- ☐ jointing: flush / keyed
- ☐ pointing colour: ...

3.4 Masonry-type facings

SANS 10073 The Safe Application of Masonry-type Facings to Buildings was withdrawn in May 2011 and “replaced” by SANS 10400-K Walls which does not yet touch on this important subject.

Thin panel cladding, e.g. marble, should be rail-fixed, leaving a cavity between facing and backing. The advantages of this system are avoidance of staining of the stone face, more reliable support, faster erection, smaller joints and less dependency on skilled labour. Consult specialist stonework contractors.

Facings wholly dependent on fixing to the backing with proprietary adhesive only may lead to failure.

- ☐ facing type: precast concrete / natural stone / burnt clay units / concrete units of design, size, colour and finish: ...

Joints should be sealed to prevent ingress of water and to provide for thermal and structural movement.

Relevant standards

SANS 993 Modular co-ordination

SANS 10021 The waterproofing of buildings (in the case of facings this depends on climatic region, facing material and backing).

SANS 10073 The safe application of masonry-type facings to buildings (withdrawn).

SANS 10145 Concrete masonry construction.

SANS 10164 The structural use of masonry.

SANS 10249 Masonry walling.

SANS 10400-H Foundations.

SANS 10400-K Walls.

SANS 10400-M Stairways.

SANS 10400-P Drainage.

4 Structural timberwork

4.1 Structural timberwork (flooring) (SANS 2001-CT1)

SANS 2001-CT1 covers the installation of suspended timber floors in buildings to be constructed for occupancy class H3 (domestic residence) and H4 (dwelling house) buildings, as described in SANS 10400-J Floors, and that have a distance that does not exceed 7 m between supports, and a beam/joist spacing that does not exceed 600 mm. Modify to make this part of SANS 2001 applicable for the installation of suspended timber floors designed for other occupancies or for greater dimensions between beams or supports.

For wood floors on solid substrates see Section 13.

Specification data:

softwood timber joists

- ☐ type: solid / laminated
- ☐ cross section: see drawings

Omit if default description (to SANS 10400-J) is acceptable.

hangers, masonry anchors

- ☐ size/strength: ...

Omit if default description in SANS 2001-CT1 (hangers: 4,0 kN; masonry anchors: 10 dia x 45 mm length, 2,5 kN) is acceptable.

softwood flooring boards

Omit this part if default description in SANS 2001-CT1 is acceptable. NOTE SANS 629 withdrawn 2012 without replacement. Most req'd data kept except marking.

- ☐ softwood flooring boards:

genus: Pinus / Cedrus / Podocarpus / Cupressus
 nature: solid / laminated
 grade: clear flooring / select flooring / flooring
 density group: light / heavy

Density group: light (400-550 kg/m³); heavy (550 kg/m³, for example squash court floor boards)

cross section: see drawings

Omit if default (50 – 140 x ≥22 mm) is acceptable. Also 33 mm thickness.

length: >1 800 mm when square sawn at ends, >600 mm when matched
 finger joints: not prominent

Omit if default (prominent) is acceptable.

hardwood strip flooring

NOTE SANS 281 Hardwood block and strip flooring withdrawn 2009 without replacement.

- ☐ species: ...
- ☐ dimensions: ≥460 x 57 – 90 x ≥20 mm

additional requirements

- ☐ hardwood species: ...
- ☐ hardwood prefinish: required / not required
- ☐ exposed faces of sawn structural timber: planed, sandpapered, and arris rounded to 3 mm radius.

4.2 Structural timberwork (roofing) (SANS 2001-CT2)

SANS 2001-CT2 covers the construction of timber roof assemblies in buildings. It includes the manufacture of bolted trusses that are designed in accordance with the requirements of SANS 10400, the erection of prefabricated timber trusses, the erection of rafters and purlin rafters, the fixing of purlins and battens, and the fixing of bracing to roofing members to support ceilings that comprise gypsum plasterboard, fibre-cement board or similar boards

Specification data:

softwood roofing timber

- ☐ type: solid / laminated
- ☐ cross section, grade: see drawings / to SANS 10400-L Roofs / to standard ...

roofing poles (“fence poles” SANS 457)

“fence” poles are normally used for roofs. See also “transmission” poles below

- ☐ roofing pole type: softwood SANS 457-2 / hardwood SANS 457-3 / to standard ...
- ☐ top diameter (thin end, colour-coded) : see drawings

50-79 (red), 80-99 (yellow), 100-119 (blue), 120-139 (white), 140-159 (orange), 160-179 (green), 180-199 (black) mm; ditto posts: 145-174, 175-199, 200-230 mm.

hangers, clips, masonry anchors

- ☐ size/strength: ...

Omit if default requirements (hangers: 4,0 kN; hurricane clips: 1,2 kN; masonry anchors: 10 dia x 45 mm length, 2,5 kN) are suitable.

additional clauses

- ☐ truss type: monoplanar prefabricated rational design to SANS 10243 or SANS 1900 / lapped and bolted within scope of SANS 10400-L/10243

In case of lapped and bolted trusses, show all member sizes and connection details on drawings. SANS 10243 provides guidance on the manufacture, erection and bracing of timber roof trusses. SANS 1900 covers a rational design prepared by a *Competent Person* and inspected by such a person during installation.

- ☐ “transmission” poles, diameter: softwood poles SANS 753 / hardwood poles SANS 754

Omit if “fence” poles to SANS 457 as required by SANS 2001-CT2 are acceptable. “Transmission” poles to SANS 753/754 should only be used when high strength is specifically required. See SANS 753 for lengths, minimum top diameter of poles.

- ☐ gang planks: two 150 x 38 mm softwood grade S5, nailed onto tie beams where shown on drawings / nailed onto tie beams of two adjoining trusses on both sides of geysers

Gang planks for walking/crawling in roof space, when required.

- ☐ timber lintels type and size: see drawings

softwood / hardwood / structural laminated timber / composite structural plywood web and solid timber flanges; grade: 5 / 7 / 10

4.3 Structural laminated timber (SANS 1460)

- ☐ material: see drawings

softwood (Pinus) / hardwood (Eucalyptus) / board (fibreboard, plywood, composite board)

- ☐ exposure class: 1 (exterior), 2 (semi-exterior), 3 (humid interior), 4 (dry interior)
- ☐ type: G (stocklam) / C (customlam)
- ☐ appearance and finish: rough-sawn (R), fine-sawn (F), planed (P), sanded (S), smoothed (G), coated (C), special (X)
- ☐ stress grade: 5 / 7 / 10 / 14
- ☐ fire retardant treatment: required / not required
- ☐ cross section: see drawings.

Relevant standards:

SANS 1288 Preservative treated timber.
SANS 1900: Monoplanar prefabricated timber roof trusses (nail-plated).
SANS 10005: Preservative treatment of timber.
SANS 10043: The laying of wood floors.
SANS 10082: Timber buildings.
SANS 10096: Manufacturing of finger-jointed structural timber.
SANS 10163 The structural use of timber.
SANS 10243 The design, manufacture and erection of timber trusses.
SANS 10400-J Floors.
SANS 10400-L Roofs.
SANS 10400-M Stairways.
SANS 10400-T Fire Protection.

5 Structural steelwork

5.1 Structural steelwork (SANS 2001-CS1)

SANS 2001-CS1 covers structural steelwork for buildings and other structures, excluding bridges, offshore structures, mobile equipment (stackers, reclaimers, draglines, cranes, etc.), mine shaft steelwork (buntions and guides) and mining conveyances, but does not cover roof and side cladding, or the detailed aspects of sundry items such as handrails, ladders, steel flooring and the like, neither does it cover protection of steelwork against corrosion or fire.

Specification data:

- ☐ class and grade of fasteners: ...
- ☐ format of drawings: ...

State in which format and to which standards each category of drawings shall be prepared.

- ☐ hole sizes for holding-down bolts in excess of 36 mm diameter: ...
- ☐ connections to allow movement: ...
- ☐ requirements for machining: ...
- ☐ requirements for non-destructive tests on welds: ...

5.2 Sundry steelwork

5.2.1 Material

cold-formed structural steel (SANS 10162)

- ☐ commercial quality steel: permitted if yield stress equals 200 MPa, tensile strength 365MPa; obtain proof.

Cold-formed profiles are often made from commercial quality steel of which the yield stress is seldom less than 210 MPa.

structural steel tubes SANS 657-1

- ☐ coating: uncoated / hot dip galvanized coating SANS 32 quality B
- ☐ size/profile: see drawings

Size/profile: 21, 27, 32, 34, 38, 42, 48, 51, 60, 76, 89, 102, 114, 127, 140, 152, 165, 178, 219 mm $\varnothing$ (general purpose); 20 x 20, 25 x 25, 30 x 30, 40 x 40, 50 x 50, 60 x 60, 70 x 70, 80 x 80, 90 x 90, 100 x 100, 115 x 115, 120 x 120, 135 x 135, 140 x 140, 150 x 150, 160 x 160, 175 x 175, 180 x 180 mm (square); 40 x 20, 50 x 30, 60 x 40, 80 x 40, 90 x 50, 100 x 50, 100 x 60, 120 x 60, 120 x 80, 140 x 90, 150 x 100, 160 x 80, 180 x 100, 200 x 100, 200 x 120, 220 x 140, 250 x 150 mm (rectangular)

corrosion resistant (weathering) steel

Corrosion resistant steel also known as COR-TEN, a registered trademark of USX Corporation. Corrosion resistant steel is weldable. Available in sheet (<2,0 mm) and strip (2,5 – 6,0 mm). Consult Mittal Steel.

- ☐ grade: 1 / A

steel wire rope (cables)

- ☐ class: 6 x 7 / 6 x 24 / 6 x 37 / 8 x 19 mm
- ☐ diameter: 6 / 7 / 8 / 9 / 10 mm.

5.3 Coating

- ☐ type: hot dip galvanising / prepainting / hot dip galvanising and prepainting (duplex system)

Other coating types on steel are vitreous enamel, plastic or protective tape.

SANS 121 provides for one set of coating thickness only – see NOTES at end of Section. Thicker (25%) coatings may be requested without affecting specification conformity. The primary influencer on hot dip galvanized coating is the steel composition. See SANS 14713 for design guidelines.

hot dip galvanising

The Hot Dip Galvanizers Association South Africa (HDGASA) is the industry representative body.

- ☐ significant (architectural) surfaces: see drawings

NOTE on appearance of galvanized coatings**SANS 121:**

“The primary purpose of the galvanized coating is to protect the underlying iron or steelwork against corrosion. Considerations related to aesthetics or decorative features should be secondary. Where these secondary features are also of importance it is highly recommended that the galvanizer and customer agree the standard of finish that is achievable on the work [in total or in part], given the range of materials used to form the article. This is of particular importance where the required standard of finish is beyond that set out in this section. It should be noted that ‘roughness’ and ‘smoothness’ are relative terms and the roughness of coatings on articles galvanized after fabrication differs from mechanically wiped products, such as galvanized sheet, tube and wire. It is not possible to establish a definition of appearance and finish covering all requirements in practice.

The occurrence of darker or lighter area (e.g. cellular pattern or dark grey areas) or some surface unevenness shall not be cause for rejection: also wet storage stain (white or dark corrosion product – primarily basic zinc oxide – formed during storage in humid conditions after hot dip galvanising) shall not be cause for rejection, providing the coating thickness remains above the specified minimum value.”

- ☐ sample: required / not required
- ☐ special pre-treatments: ...
- ☐ special coating thickness: ...
- ☐ any after treatments: ...
- ☐ method of site repair and maximum allowable size of repair: ...

Omit if default (repair by either zinc metal thermal spraying, zinc rich epoxy or a *suitable* zinc rich paint, provided that the repaired surface receive an additional 30 µm over and above that required in terms of the specification; HDGASA recommends a practical repair area of ± a R5 coin) is acceptable.

- ☐ architectural work to be packaged: required / not required

paint or varnish

SANS 12944 covers the following suitable surfaces for painting: uncoated steel; thermally sprayed with zinc, aluminium or their alloys; hot dip galvanized; zinc-electroplated; sherardized; prefabrication primed; other painted surfaces. Part 2 deals with the principal environments and the corrosivity of these environments to which steel structures are exposed: atmospheric corrosivity category: C1 very low / C2 low / C3 medium / C4 high / C5-I very high (industrial) / C5-M (marine); immersed category for water and soil: Im1 (fresh water) / Im2 (sea or brackish water) / Im3 (soil). Part 5 deals with paint systems.

- ☐ paint system: alkyd / chlorinated rubber / PVC / acrylic / epoxy / ethyl silicate / polyurethane / bitumen

Protective paint systems not covered: powder coating; stoving enamel; heat-cured paints; linings of tanks; products for the chemical treatment of surfaces.

5.4 Fire protection

The yield strength of steel is halved at temperatures exceeding 550°C. Consider placing columns outside building.

- ☐ protection of structural steel against fire: see drawings

reinforced concrete grade 25 / solid masonry / sprayed vermiculite-cement/perlite-cement / metal lath and plaster

Relevant standards:

SANS 1921 Construction and management requirements for works contracts.

SANS 10094 The use of high-strength friction-grip bolts.

SANS 10162 The structural use of steel.

SANS 14713 Protection against corrosion of iron and steel in structures – zinc and aluminium coatings – guidelines.

HDGASA code of practice no 1-1990 The Surface Preparation and Application of Organic Coatings to New, Unweathered Hot Dip Galvanized Steel (Sheet and Section) Excluding In-line Coil Coatings.

HDGASA code of practice no 2-1990 Specification for the Performance Requirements of Coating Systems Applied to New Unweathered Hot Dip Galvanized Steel (Sheet and Section) excluding In-line Coil Coating (Duplex Systems).

NOTES on hot dip zinc coating thickness and service life:

Consult the Hot Dip Galvanizer's Association of South Africa (HDGASA) for determination of high corrosivity areas.

8/3/405 – Changing of vehicle Parking garage to Office (etender document)

All hot dip galvanising specifications state the minimum *suitable* coating thickness and not average coating thickness. The thickness actually achieved varies with steel composition and thickness of steel, and can range from the minimum up to >50% greater. As life expectancy predictions are normally based on the minimum coating thickness, they are usually conservative.

Hot dip galvanized coating on structural steel should in most cases provide a service-free life of 40 – 50 years. This is determined by dividing the minimum achieved coating thickness taken on the thinnest steel component by the corrosion rate per year for the location in question (see table).

HDGASA uses SANS ISO 9223 to determine corrosivity categories, based on three factors:

1) Time of wetness, being the period that the zinc surface is covered by liquid containing the corrosive elements (electrolyte); 2) Airborne pollution containing sulphur dioxide (SO₂); 3) Airborne pollution containing salinity, usually in the form of chlorides carried on prevailing sea winds.

Estimated service life of hot dip galvanized steel complying with SANS 121				
Corrosivity Category ISO 9223	Zinc corrosion rate / yr	55 µm for steel 1.5 – 3mm thick	70 µm for steel 3 – 6 mm thick	85 µm for steel >6 mm thick
C 1 very low	<0.1 µm	>100 yrs	>100 yrs	>100 yrs
C 2 low	0.1 – 0.7	<78.5 yrs	>100 yrs	>100 yrs
C 3 medium	0.7 – 2.1	26 – 78.5 yrs	33 – 100 yrs	40 – >100 yrs
C 4 high	2.1 – 4.2	13 – 26 yrs	16 – 33 yrs	20 – 40 yrs
C 5 very high	4.2 – 8.4	6.5 – 13 yrs	8.3 – 16 yrs	10 – 20 yrs

Source: HDGASA Information sheet No 8.

Coating thickness in µm can be converted to approximate coating mass per unit area in g/m² by multiplying by the nominal density of the coating (7,2 g/cm³): thus 55 µm = 395 g/m²; 70 µm = 505 g/m²; 85 µm = 610 g/m²

Source: SANS 121 / SANS 14713.

Z275 is the designation for 275 g/m² zinc/surface area on both sides of steel sheet (for sheet that would mean 137.5 g/side) which equals a mean coating thickness of 19 µm. Similarly, Z450 equals 22 µm, and Z600 equals 43 µm).

6 Insulation, sealants, seals

6.1 Thermal insulation

6.1.1 Materials

Consider insulation materials with recycled content, e.g. polystyrene, glass fibre, cellulose and polyester fibre. Consult TIASA (Thermal Insulation Association of SA) or EPSASA (Expanded Polystyrene Ass. of SA).

- ☐ type: bulk (rigid board, fibre mats or batts) / reflective (foil) / composite bulk / loose fill / pipe / spray foam
- ☐ required R-value/thickness: SANS 204

Show all insulation thicknesses on drawings. Actual R-value test results may be obtained from the South African Fenestration and Insulation Energy Rating Association (SAFIERA).

- ☐ required fire performance classification of thermally insulated building envelope systems: SANS 428

combustability: A / B

A (non combustible); B (combustible)

surface fire spread properties: 1 / 2 / 3 / 4 / 5 / 6

1 (no flame spread) / 2 – 6 (rapid flame spread)

application: vertical / horizontal / vertical and horizontal / see drawings

Consult SANS 10400-T for fire performance requirements.

rigid board

- ☐ material: EPS / XPS / EPU
- ☐ expanded polystyrene (EPS) grade: 16D-85 / 24D-170 / 32D-225

16D-85 (standard); 24D-170 (high); 32D-225 (extra high) (density kg/m³–compressive strength kPa)

EPS is combustible on its own but claimed to be fire-safe in a masonry cavity with closed reveals (see EPSASA leaflet *EPS Cavity Wall Insulation*). EPS will resist the passage of moisture. Panel width: 600 mm; thicknesses: 25, 30, 40, 50 (ex stock), 60, 70, 80 (to order)

- ☐ face: plain / foil / ...
- ☐ edge: square / shiplap / tongue and groove

fibre mats/batts

- ☐ form: mats (flexible) / batts (rigid)
- ☐ face: plain / foil / ...

Typical fibres are mineral (rock wool, glass wool), synthetic (polyester, polyethylene), and natural (wool). Fibre insulation is not recommended in partial fill masonry cavity construction – consult manufacturer.

reflective foil

- ☐ reflective foil class: A / B / C / D

A (reinforced, both surfaces reflective), B (reinforced, one surface reflective), C (unreinforced, both surfaces reflective), D (unreinforced, one surface reflective). Foil may double as an effective vapour barrier. See additional notes on foil at end of this section.

The thermal resistance of reflective insulation varies with the direction of heat flow through it, i.e. vertical, horizontal or sloped, and the number and defined thickness of air spaces it faces. It is important that bright surfaces facing air spaces remain untarnished on at least one surface.

The difference in direction of heat flow is generally marginal for bulk insulation but can be pronounced for reflective insulation. Reflective insulation is more effective at reducing summer heat gain than reducing winter heat loss.

Reflective foils are valuable when used in combination with bulk insulation for improved performance.

Composite bulk and reflective materials are available that combine some features of both types. Examples include foil bonded to bulk insulation, whether blankets, batts or boards, i.e. foil faced blankets, foil faced batts and foil faced boards.

metal faced insulation panels

For use in buildings, cold rooms and hot rooms, interior and exterior.

- ☐ corrosion comparison index of panel-facing coating: 1 / 2 / 3 / 4
- ☐ core insulation: calcium silicate / mineral fibre / polyisocyanurate / polyphen / polystyrene / polyurethane / rockwool
- ☐ facing: chromadek / galvanized steel / PVC laminated galvanized steel / stainless steel / zincalume

Metal faced insulation panels are typically used in cold storage systems. Consult TPMA (Thermal Panel Manufacturer's Association).

loose fill

- ☐ loose fill: pellets or granules / cellulose.

6.1.2 Installation

- ☐ system: SANS 204 / rational design

masonry cavity wall insulation

- ☐ type: full fill cavity / partial fill cavity / loose fill / see drawings

Insulation can be installed full fill in cavities in most areas where cavity walls are not required to prevent moisture migration, or where walls are plastered and painted or protected by roof overhangs of >750 mm.

Insulation should be installed partial fill in cavities where the cavity also serves as a moisture barrier against wind-driven rain, mostly in winter rainfall areas, but also in cases of exposed face brick walls in general (e.g. gable walls, walls without roof overhangs, high buildings).

In exposed walls, filling cavities with loose fill insulation may result in insulation becoming wet, losing its insulation value and causing dampness on the inner leaf.

Filling of concrete block cores with any type of insulation offers little energy savings since the majority of heat is conducted through the webs and mortar joints.

masonry wall external face insulation

- ☐ masonry wall external face insulation: ...

Omit if default (patent system of EPS external insulation bonded and mechanically fixed to dry, sound and flat surface, finished with reinforced polymeric plaster) is acceptable, or specify alternative.

Installing insulation against internal face of envelope wall would result in losing capacitive insulation of internal leaf (thermal mass).

pitched roof/ceiling insulation

- ☐ system: reflective foil under roof covering / bulk insulation on ceiling / foil + bulk / see drawings

flat roof insulation

- ☐ material: rigid EPS insulation density 32D
- ☐ flat roof insulation position: over waterproofing / under screed

Insulation on flat trafficable concrete roofs should be firm enough to support the waterproofing system and foreseeable loadings, i.e. under screed. See Section 8 for further particulars.

floor insulation

- ☐ under floor slab insulation: required / not required

In case of in-slab heating as required by SANS 204.

6.2 Vapour barriers

- ☐ type: ...
- ☐ position: see drawings

Clay brick and concrete block masonry is able to accommodate moisture migration (damp open), normally rendering a vapour barrier unnecessary. SANS 204 advises that designers should consider that interstitial condensation occurs in walling systems which are not able to prevent or accommodate moisture migration. Also, that artificial cooling of buildings in some climates can cause condensation to form inside the layers of the building envelope. Such condensation can cause significant structural or cosmetic damage to the envelope before it is detected. Associated mould growth may also create health risks to the occupants. Effective control of condensation is a complex issue. In some locations a fully sealed vapour barrier may need to be installed on the more humid, or generally warmer, side of the insulation.

6.3 Sound absorption materials

- ☐ structure-borne sound insulation: mineral fibre mats SANS 1381 / cork
- ☐ airborne sound absorption: mineral fibre mats SANS 1381 + perforated 10 mm plywood / plasterboard / hardboard / metal / see drawings.

6.4 Joint fillers/sealants

- ☐ joint filler/sealant colour: ...

Industrial sealants compatible with bitumen may not be available in SA.

Two-part sealants are generally more effective and costly than one-part sealants.

See also SANS 2001-CC1 for specification of waterstops.

6.5 Architectural seals

- ☐ type: patent extruded aluminium carriers with flexible seal inserts of synthetic rubber, rigid PVC, nylon brush filaments, polypropylene pile, or silicone rubber / patent PVC, pile or neoprene door and window frame seals / patent silicone intumescent seals (fire and smoke) / patent external extruded aluminium threshold plate seals

Architectural seals need careful study by the designer – consult supplier.

- ☐ aluminium extrusion finish: mill / anodised / painted
- ☐ intended use of seal: energy (draughts, dust, insects) / intumescent (fire and smoke) / acoustic (noise) / finger-pinch protection (schools, day-care centres) / threshold plate / access (mobility, disabled persons)

Intumescent seals are designed to expand when subjected to heat.

- ☐ duty level: light / medium / heavy

Duty level: light (domestic); medium (commercial); heavy (hospitals, airports, shopping malls).

- ☐ mounting: fully morticed / semi morticed / surface mounted / grooved.

NOTE: Additional notes on reflective foil thermal insulation:

The difference in direction of heat flow is generally marginal for bulk insulation but can be pronounced for reflective insulation. Reflective insulation is more effective at reducing summer heat gain than reducing winter heat loss.

The thermal resistance of reflective insulation varies with the direction of heat flow through it, i.e. vertical, horizontal or sloped, the number of air spaces and defined thicknesses of the air spaces. Furthermore, that the bright surfaces facing the air space/spaces remains untarnished on at least one surface.

Reflective foils are valuable when used in combination with bulk insulation for improved performance.

Composite bulk and reflective materials are available that combine some features of both types. Examples include foil bonded to bulk insulation, whether blankets, batts or boards, i.e. foil faced blankets, foil faced batts and foil faced boards.

7 Roof coverings, cladding

To be published: SANS 2001-CR2 Tiled and sheeted roofs.

7.1 General

☐ type of cover, cladding: see drawings

tile / profiled sheet / fully-supported sheet / thatch

☐ roof pitch: see drawings

Check minimum roof pitches with SANS 10400-L. Roof pitches below that recommended by the manufacturer can be achieved by laying plywood boarding over the rafters and covering with waterproofing before tiling. Check with manufacturer.

underlay

☐ underlay type: reflective foil / polymer / the subject of an active Agrément Certificate

See Section 6 for reflective foil. Reflective foil doubles as thermal insulation and should be first choice in hot climates.

7.2 Tile roofing/cladding

7.2.1 Materials

☐ type of tile: concrete / clay / slate / fibre-cement / metal

concrete roof tiles

Concrete roof tiles have a mass of $\pm 55 \text{ kg/m}^2$ laid.

☐ pattern and colour: ...

☐ type: plain / interlocking

☐ body colour or surface coating category: 1 / 2 / 3 / 4

1 (none); 2 (surface coating only); 3 (body colour only); 4 (both).

☐ finish: throughcolour / granular / sanded

clay roof tiles

☐ type: Broseley (plain) / Marseilles (interlocking) / ...

☐ colour: ...

natural slate tiles

☐ size, colour: ...

fibre-cement slates

☐ texture, colour: plain / textured / natural / ...

Mass of fibre-cement tiles is 25 kg/m^2 laid.

metal roofing tiles

☐ material, finish: hot dip galvanized steel / aluminium alloy / stainless steel / coated / uncoated

fixing materials

☐ fixing materials: galvanized steel / stainless steel or aluminium

Galvanized steel in inland regions. Stainless steel or aluminium in *coastal regions* or corrosive atmospheres, except for clay tiles where all fixings shall be stainless steel.

7.2.2 Roof tiling

preparation

☐ terrain category: 1 / 2 / 3 / 4

Terrain category 1: exposed open/ *coastal areas* (generally the area within 5km from the coast-line unless otherwise defined locally); 2: exposed with scattered obstructions; 3: well-wooded areas and suburbs, town and industrial areas; 4: large city centres.

☐ design wind speed: 40 / 45 / 50 / 55 m/s

☐ height above ground / number of storeys: ...

☐ eaves: open / boarded

Eaves should be boarded in exposed terrains.

laying

- ☐ tile: concrete / clay / slate / fibre-cement / metal
- ☐ valley gutter: open / concealed
- ☐ verge tiles: required / not required

roof underlay

- ☐ roof underlay: required / not required

Underlays are strongly recommended in any area, and are mandatory in exposed and coastal terrains, depending on pitch. Not required for metal roof tiles.

SANS 204 states "all tile roofs in climatic zones 1, 2, 4 and 6 shall have a tile underlay or radiant barrier and the joints shall be sealed to prevent air infiltration and leakage".

7.3 Profiled sheet roofing/cladding**7.3.1 Metal sheet**

Mass of metal sheet roofing is $\pm 11 \text{ kg/m}^2$.

metal

- ☐ metal and coating: zinc-coated (galvanized) steel / AZ-coated steel / prepainted zinc coated steel / weathering steel / natural aluminium alloy / prepainted aluminium alloy / stainless steel / copper

Copper, aluminium, stainless steel or weathering steel should be used in environments where atmospheric corrosion is aggressive. Check availability, thickness and finish of these metals with manufacturer/ supplier.

profile

- ☐ profile: corrugated / box rib (IBR) / interlocking box rib / rib-trough/standing seam
- ☐ sheet length: single lengths per roof slope / standard lengths with overlap / single length standing seam over-ridge (see ridding)

Standard lengths (1,8 – 14 m) – check with manufacturer/ supplier.

Corrugated and IBR sheets in standard lengths with overlap causes less thermal movement stress on exposed fixings than long lengths.

steel

- ☐ nominal sheet thickness: 0,5 / 0,6 mm

Check availability of 0,8 mm sheets. 0,6 mm thick sheet costs $\pm 16\%$ more than 0,5 mm.

- ☐ coating grade: Z275 / Z600 / AZ150 / AZ200

Z275 and AZ150 for inland regions, Z600 and AZ200 for coastal regions and aggressive atmospheres.

Coiled sheeting with hot dip zinc coating (galvanising) class Z275 has an average zinc coating thickness of about $19\mu\text{m}$; Z600 - $42\mu\text{m}$. AZ coatings have increased corrosion resistance over zinc coating by 3 or 4. See notes on hot dip galvanising under Section 5 Structural Steel. Get expert advice from HDGASA or ARTF - SCRACE.

aluminium alloy

- ☐ aluminium roofing sheet thickness: 0,6 (cladding only) / 0,7 / 0,8 / 0,9 mm

stainless steel

- ☐ stainless steel thickness: 0,5 / 0,6 mm

copper

- ☐ copper: 0,6 mm thick

prepainted metal

- ☐ prepainted metal sheet type: 3 / 4 / 5a / 5b / 6a / 6b

Type 3 (mild to moderate rural, urban, tropical and industrial environments) / 4 (marine and industrial) / 5a (severe marine) / 5b (heavy industrial and industrial marine) / 6a very severe marine / 6b (very severe industrial).

Coil coated and prepainted products are e.g. Chromadek or Chromadek Plus (Mittal Steel) for marine and industrial environments; there are several others. Paint coating more than doubles the life of sheets with metal coating only.

weathering steel (Cor-ten)

- ☐ weathering steel: 0,8 mm

bullnosing

☐ bullnosing radius: ...

Minimum radius about 500 mm (inside radius), depending on material, profile and sheet thickness.

roof ventilators

☐ roof ventilator type, material, dimensions: ...

7.3.2 Fibre-cement sheet

Mass of 5 mm thick fibre-cement sheets is 15 kg/m². Purlins must be 50 x 76 mm at 1 200 max spacing on trusses/beams at 1 200 max spacing (SANS 10243). Finish fibre-cement sheets in *coastal areas* with an anti-fungicidal paint – see section 14 Painting.

☐ bullnosing radius: ...

7.3.3 Glass-reinforced polyester sheet

See also SANS 141 GRP laminates.

☐ type: 1 / 2

1 (with weathering protection both sides) / 2 (ditto one side)

☐ class: W / WF

W (without fire-retardant properties) / WF (with fire-retardant properties)

SANS 10400-L: “skylights shall have a maximum opening area of 0,6 m² or, if in the form of a translucent roof sheet, an installed width of 700 mm”.

☐ mass: 1,0 – 1,4 kg/m² (domestic) / 1,4 / 1,8 / 2,4 kg/m² (industrial)

☐ opacity: clear / opaque

☐ colour: ...

☐ profile: see drawings / to match roofing/cladding sheet / corrugated / IBR / ...

7.3.4 Polycarbonate sheet

☐ colour: ...

☐ thickness: 1,0 mm / 1,2 mm

1,0 mm (domestic) / 1,2 mm (industrial)

☐ profile: see drawings / to match roofing/cladding sheet / corrugated / IBR / ...

7.3.5 Fasteners and washers

☐ corrosion resistance class: 1 / 2 / 3 / 4

1 (general internal) / 2 (general internal with significant condensation) / 3 external, mild to moderate industrial or marine) / 4 (external severe marine)

Identification of corrosive characteristics of the environment is essential.

Corrosion resistance class 2, 3 and 4 correspond with class C2, C3 and C4 of ISO 9223.

Some coating information for zinc and tin-zinc coated fasteners (corrosion resistance class, coating type, coating thickness in µm):

1, electroplated zinc (EZ), 4

2, EZ, 12

2, mech. plated zinc (MPZ), 17

3, EZ, 30

3, hot dip galv (HDG), 30

3, MPZ, 40

4, HDG, 50

4, MPZ, 45. For full list see SANS 1273.

☐ type and size: hook-bolt / U-bolt / J-bolt / drive screw / self-tapping screw / *according to roofing material manufacturer's instruction*

☐ material: zinc-coated carbon steel / stainless steel.

7.3.6 Installation**exposed fixing**

☐ box rib cladding: with rib against girt / with rib away from girt

lapping

Sealing of laps in sheeted roofs in climate zone 1, 2, 4 and 6 is mandatory (SANS 204)

7.4 Fully supported metal sheet roofing and cladding

Flat metal sheet with standing seams on continuous solid boarding can follow any shape within limits of the boarding. The specification presented in PW371-A is for copper. Other materials are zinc, lead, aluminium or hot dip galvanized steel. Check material and fixing with specialists.

Boarding must be able to absorb condensation under roof sheet - use of chipboard or other dense boarding material will cause corrosion. Board thickness depends on span.

7.5 Thatch roofing

To be published: SANS 2001- Construction Works Part CR3: Thatch Roofing.

Cost of a thatch roof is 15 – 20 % higher than a conventional roof. Check insurance requirements.

Consider requesting that the work be done by a member of the South African Thatcher's Association.

Avoid penetrations of the roof area – place chimneys preferably at the ridge, ventilation pipes outside the exterior wall faces.

Thatch can be shaped and moulded.

☐ thatch type: grass / Cape reed (dekriet) / water reed

Local grass will weather better in the same climate from which it originates. Hyparrhenia and Hyparphilia species should last for 35 years. Thamnochortis species (Cape reed/dekriet) could last for 75 years. Also Phragmites Communis reed. 175 mm thick thatch weighs 35 kg/m², about 40 bundles of grass per m².

Roof pitch in general should not be less than 45 degrees, 40 degrees at dormers (SANS 10400-L).

After the maintenance period the roof should be serviced every 10 – 12 years, and a new layer of 70 – 100 mm thatch added after 35 years. The life of thatch will be prolonged by brushing with a thatch spade at 4 – 5 year intervals.

☐ wire sways: prohibited / allowed

Wire sways should not be used in roof construction in areas where lightning is a problem unless provided with a lightning protection system (See SANS 10400-T).

☐ ridding: thatch / sand-cement / fibreglass

☐ fire retardant treatment: none / pre-treatment / during construction / after installation

7.6 Flashings, trim

Flashings to metal roofs should be similar to roof material to ensure same life to first maintenance and avoid electrolytic corrosion.

Counter flashings with an anti-capillary fold avoid electrolytic corrosion.

7.7 Fascias and barge boards

☐ size: see drawings.

Relevant standards:

SANS 10062: The fixing of concrete roof tiles.

SANS 10237: Roof and side cladding.

SANS 1200 HB-Cladding and sheeting.

SANS10400-L Roofs.

SANS 10400-T Fire protection.

Concrete Roof Tiles – Technical Manual. Concrete Manufacturer's Association.

Guide to good thatching practice. Thatcher's Ass of SA.

8 Waterproofing

To be published: SANS 2001-EW Waterproofing.

8.1 Materials

This section covers the conventional system of waterproofing with membranes only. Damp proofing in masonry is covered in SANS 2001-CM1. Consult The Concrete Institute for the waterproofing of concrete with additives.

The Waterproofing Federation of South Africa is the industry representative body.

SANS 10021 is outdated but useful and hopefully to be revised.

Bituminous felt (SANS 92), mastic asphalt (SANS 297/405) and elastomeric membranes like butyl rubber (polyisobutylene, SANS 187), chloroprene rubber (SANS 580) and EPDM (Ethylene Propylene Diene Monomer) have been used in the past but have largely been replaced by polymer modified bitumen membranes. No national standard exists for polymer-modified bitumen membranes, but most systems are Agrément certified.

reinforced bitumen membrane (RBM)

- ☐ finish: plain / slate granular / metal foil: aluminium or copper

self-adhesive plastic membrane (APM)

- ☐ finish: plain / foil / granular / polyester fabric

Self-adhesive membranes are thin (1,5 mm), normally laid as single layer systems to be covered (not UV resistant, except with foil, granular or fabric finishes).

reinforced liquid membrane (RLM)

- ☐ in situ reinforced liquid system: acrylic emulsion / bitumen emulsion / cementitious

Acrylic or bitumen emulsion is suitable only for exposed roofs and parapet walls. Cementitious systems can only be applied to cementitious backgrounds and can be tiled directly.

cavity drainage membrane

Studded polypropylene or HDPE cavity drainage membranes allow damp or running water to travel behind the membrane to a controlled drainage system. They are lighter than conventional stone and geotextile, provide continuous drainage and act as slip/separation layer.

slip/protection layers, geomembranes

Check requirements for bituminous felt or HDPE slip/protection layers and thermoplastics geomembranes.

outlets

- ☐ outlet type: roof / small balcony / shower
- ☐ size: >75 mm.

SANS 10400-L: Slope of a (cast in situ) concrete roof should be achieved by casting the concrete to the required fall, eliminating the need for a screed which may be susceptible to cracking and resultant spreading of leaks.

Falls in flat timber roofs should be created in the rafter/beam design and not by raising purlins.

Show ridges, valleys and falls clearly in drawings.

SANS 10400-L Roofs stipulates a design fall of 1:50, allowing for construction inaccuracies and deflection under dead or imposed loads.

8.2 Preparation

falls

balconies

Ensure balconies are at a sufficiently lower level than door thresholds to allow for the screed or topping to be minimum 50 mm thick, and have sufficient fall to outlet(s).

Balustrades are best fixed to front of upstands.

Balcony door thresholds exposed to rain: waterproofing should be continued up against threshold and finished under door frame

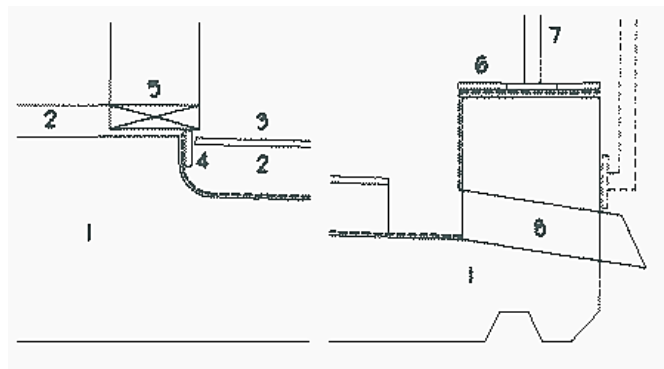


Diagram: Section through a balcony

1 concrete slab; 2 screed (optional); 3 tiles in adhesive on screed or bonded to waterproofing; 4 soft joint/sealant; 5 sliding door frame; 6 tiles bonded to waterproofing; 7 balustrade; 8 outlet.

outlets

Outlets set lower than their surroundings to prevent ponding: SANS 10400-L 4.3.2.4

SANS 10400-L: "attention should be given to the provision of ventilation to allow moist air, which might accumulate below the waterproofing layer, to be vented to the outside air". Check with manufacturer/supplier.

8.3 Application

For basement construction see SANS 10021. Basement floors and walls may be tanked, or formed with a cavity construction combined with drainage or pumping, or both, or may be constructed with cavity drainage membranes.

8.3.2 Termination

Bonding waterproofing with DPC's should be considered in winter rainfall areas. DPC's should be the same material as the waterproofing and have sufficient overhang to facilitate overlapping and bonding.

Balcony door thresholds exposed to rain are a common cause of leakage. Waterproofing should be taken up against thresholds and finished under the door frame and sealed.

1.5 Waterproofing surface finishes/protection

Protection against UV degradation, traffic and hail prolongs life expectancy of membranes. No protection required to exposed bitumen membranes with slate granular or metal foil finishes.

8.5.1 Exposed non-trafficable areas

□ type finish/protection: see drawings

Paint / crushed stone / crushed stone on insulation panels / tiled insulation panels

paint

Acrylic does not adhere well to new bituminous-based systems.

crushed stone

A layer of gravel protects waterproofing and acts as anchor, but makes leaks difficult to trace. Thermal insulation value of gravel layer on its own is slight.

tiled insulation panels

Thermal insulation should be placed over the waterproofing (“inverted roof”), protecting it from high temperature fluctuation, ultraviolet degradation and mechanical damage, while allowing easy visual inspection of the waterproofing when laid loose.

Depending on tile mass, loose-laid tiled insulation panels should be installed only on flat roofs protected against wind by perimeter upstands. Tiles should be fully vitrified to withstand freeze-thaw cycles and should be sturdy enough to withstand handling and maintenance foot traffic. Panel size depends on multiples of tile size. Panels could float during heavy downfalls. Panels are easily removed for inspection and maintenance.

8.5.2 Pedestrian traffic areas

☐ type finish/protection: see drawings

topping / topping on insulation panels / tiles on screed / tiles on waterproofing / paving slabs on insulation panels / paving slabs on adjustable pads

Paving units are suitable for trafficable roofs, and for roof gardens and planters where waterproofing may be damaged by garden tools.

Paving on adjustable pads can be easily removed for inspection/repair, and the air space provides considerable thermal downward insulation. Paving slabs need to be sturdy, depending on traffic.

thermal insulation panels

☐ lay finish on thermal insulation panels: required / not required

tiles on waterproofing

☐ tile type, size: ...

See Section 12 Tiling.

paving slabs on adjustable pads

☐ paving surface levels: see drawings

8.5.3 Vehicular traffic areas

☐ type finish/protection: see drawings

50 mm premix laid directly onto waterproofing / brick or concrete pavers laid on 25 – 30 mm sand bed (see Section 21 External works) / 75 mm concrete paving on protection/slip layer (see Section 2 Concrete works)

8.5.4 Basement, retaining walls

☐ before backfilling, protect waterproofing with: softboard / hardboard / cavity drainage membrane / masonry leaf

☐ drainage system behind wall: ...

Omit if not agricultural drain encased in stone as specified.

8.5.5 Planters, roof gardens

☐ type finish/protection: 100–150 mm layer stone with geocomposite drainage layer with minimum mass of 210 g/m² laid on top / cavity drainage membrane laid directly on waterproofing.

Relevant standards:

SANS 10021 Waterproofing of buildings (including damp-proofing and vapour barrier installation).

SANS 10400-L Roofs.

BS.8102:2009 - Protection of Below Ground Structures against Water from the Ground.

GP Koning. *The Waterproofing of Buildings*. PO Box 26153 Hout Bay 76872.

9 Ceilings, linings, partitions, access flooring

To be published: SANS 2001- Construction Works Part EC1: Ceilings, partitions, access flooring.

9.1 Brandered ceilings

9.1.1 Branders, grounds

☐ type: timber / steel

timber branders/grounds

SANS 2001-CT2 (and SANS 10400-L) covers the fixing of timber brandering to roofing members to support ceilings that comprise gypsum plasterboard, fibre-cement board or similar boards only: "Brander of size 38 mm × 38 mm required to support gypsum plasterboard, fibre-cement board or similar board shall be securely spiked to the supporting timbers with 75 mm wire nails. Cross brandering shall be cut in between the longitudinal brandering and skew nailed to the same, using 75 mm wire nails at centres that do not exceed 900 mm".

Grounds for wall linings: depth of 25 mm may be influenced by thickness of required insulation, services.

steel branders

Steel brandering is ideal for bulkhead construction.

☐ perimeter trim: standard / shadowline.

9.1.2 Fibre cement and gypsum board brandered ceilings

☐ type: fibre-cement / gypsum

fibre-cement board

Flat fibre-cement boards are made with organic fibres, plain or textured, and are water and fire resistant.

gypsum board

Gypsum board is non-comustible. Standard board should not be exposed to contact with water – do not use in industrial bathrooms or kitchens, or in exterior applications. For high moisture conditions use moisture resistant board. For fire resistance use X-rated board. Use double layers where acoustic insulation is required.

☐ type: standard / moisture resistant / fire rated

☐ edge: square / tapered

Use tapered edge board for scrim and plaster joints when full ceiling surface is not to be plastered.

cornices

☐ material, size: coved gypsum 75 mm wide / ditto 125 mm wide / coved polystyrene cornice / foam moulded / hardwood / softwood, profile ...

cover strips

☐ joint cover strips: H-profile: prepainted galvanized steel, aluzinc or plastic / gypsum board / hardwood: specie ...; profile, size: see drawings

Omit if ceiling is plastered.

fixing

☐ board pattern: see drawings

Omit if not visible or default (symmetrical about room) is acceptable.

☐ position of movement/control joints: see drawings

movement/control joints should be a clean break of 15 mm through the complete ceiling structure and finish.

finish

☐ finish to plaster board ceiling: plain with cover strips / plain with plastered joints / entire ceiling plastered

9.1.3 Wood board brandered ceilings, linings

☐ type of board: tongue and groove / strip / plywood / perforated plywood

tongue and groove board (SANS 1039)

☐ species: softwood / hardwood / species ...

☐ grade: clear / select / knotty

- ☐ profile: see drawings

See SANS 1039 for various profiles.

- ☐ face width: 50 / 65 / 75 / 102 / 140 mm
- ☐ thickness: ceiling board: 12 / 16; panelling 12 / 16 / 22 mm

wood strip, trim

- ☐ strip spacing: see drawings

plywood

- ☐ exposure class: 1 / 2 / 3 / 4

1 (exterior); 2 (semi-exterior); 3 (humid interior); 4 (dry interior).

- ☐ veneer species: ...
- ☐ cut: rotary / sliced
- ☐ grade: S / A / B

S (select, for decorative applications), A (furniture, for joinery where it may be reworked), B (standard, to be covered, coated or painted).

- ☐ perforations: size, spacing: ...

For effect and/or acoustic control.

fixing

- ☐ position of ceiling: see drawings

above / in between / below roof beams

- ☐ strip spacing: ...
- ☐ cornice, trim size and profile: ...

9.1.4 Hatches

- ☐ position of ceiling hatches: see drawings

See note on geyser position under Section 18.

- ☐ trap door: hinged / laid loose

9.2 Suspended ceilings

Consult SABISA (South African Building Interior Systems Association, part of the AAAMSA group).

- ☐ type: board / fabric / louvre / grid / bulkhead
- ☐ material: mineral fibre / metal / ...

performance

- ☐ required fire resistance in minutes: see drawings

20 / 30 / 60 / 90 / 120 / 180 / 240

See also note under 9.3.

- ☐ required airborne sound insulation grading dB: see drawings

30 / 35 / 40 / 45 / 50

For noise measurement and rating consult SANS 10103.

See also note under 9.3.

board

- ☐ type: plain / perforated / smoke-tight / impact-proof (e.g. ball) / removable / fold-down / drop-and-slide
- ☐ material: mineral fibre / gypsum / fibre cement / metal / vinyl clad / grid / flush plaster
- ☐ mineral fibre edge: square / revealed square / bevelled concealed / concealed



- ☐ size: see drawings
- ☐ colour: ...
- ☐ texture: plain / fissured / perforated
- ☐ finish: ...

- ☐ ceiling panels: removable and replaceable from below / fixed / as required for maintenance

suspension fittings

- ☐ suspension system: patent / rational design

installation

- ☐ grid pattern: see drawings

access

- ☐ access: see drawings

Access depends on hold-down system, panel removability, access requirements to above-ceiling services, weight of ceiling panels. Discuss with manufacturer/supplier.

9.3 Partitions, linings

- ☐ type: see drawings

drywall / light weight internal wall / demountable / cubicle / operable

performance

- ☐ required fire resistance in minutes: see drawings

20 / 30 / 60 / 90 / 120 / 180 / 240

Fire resistance: SANS 10400 Part T classifies the performance of materials in respect of fire resistance in categories of 20, 30, 60, 90, 120, 180 and 240 minutes. Architect/*Competent Person* to specify. Fire resistance is achieved by increasing layers of board. Deflection requirements are achieved by multiple studs reinforced with layers of board. Check with SABISA.

- ☐ required sound insulation grading dB: see drawings

30 / 35 / 40 / 45 / 50

30 (normal speech audible, but unintelligible), 35 (loud speech understood), 40 (loud speech audible, but unintelligible), 45 (loud speech barely audible), 50 (shouting barely audible)

Comparable constructions: 26 (solid wood door without seals), 32 (6 mm laminated glass), 42 (100 mm brick wall), 48 (230 mm hollow concrete wall).

For noise measurement consult SANS 10103.

9.3.1 Materials

gypsum plasterboard

- ☐ type: wallboard / moisture resistant wallboard / high-temperature wallboard

Moisture resistant board for use in all wet areas such as bathroom showers as well as locations with high humidity levels.

- ☐ thickness: 12 / 15 mm

- ☐ type of edge: square / tapered / bevelled / rounded

- ☐ covering: paper backed vinyl of weight in g/m² : ...

fibre cement board

- ☐ type: MD / HD

flat unpressed (MD), flat pressed (HD).

- ☐ thickness: 9 mm

studs and tracks

- ☐ material: metal / wood

aluminium extrusions

- ☐ abrasion resistance: required / not required

- ☐ colour: natural / anodized

anodising

- ☐ anodising grade SANS 1407: AG10 / AG15 / AG20 / AG25

grade AG10 (0,1 mm thick), for interior use only; AG15 and 20 for mild atmospheric conditions; AG25 where little or no deterioration is permitted. According to ASFA (Aluminium Surface Finishers Association), SANS 1407 is suitable for internal use only.

- ☐ abrasion resistance when relevant: required / not required

- ☐ colour: ...

powder coating

- ☐ SANS 1274 type: 1 / 2

1 (heavy duty interior), 2 (interior and non-corrosive conditions).

- ☐ colour: ...
- ☐ finish: matt / satin / high gloss / hammertone / textured

glass

- ☐ type: see drawings

float glass / wired / patterned / safety

See GLAZING

- ☐ thickness: see drawings

9.3.2 Drywall partitions, light weight internal walls

- ☐ framing: timber / steel
- ☐ cladding: gypsum board / fibre cement board
- ☐ gypsum board cladding finish: vinyl / paint / tile

For cladding finish of appropriate type to suit expected traffic in designated areas, refer to manufacturer for recommendations.

- ☐ door/window frame finish: anodising / powder coating
- ☐ glazing: clear / opaque / patterned / safety

9.3.3 Demountable partitions

- ☐ framing: steel / aluminium
- ☐ exposed frame finish: anodized aluminium / powder coating
- ☐ cladding: gypsum plasterboard / melamine-faced board / ...
- ☐ cladding finish: vinyl / paint
- ☐ glazing: clear / opaque / patterned / safety

9.3.4 Cubicle partitions

- ☐ mounting: flush floor / raised on stainless steel stiles
- ☐ panels: vitreous enamel / melamine faced
- ☐ hinge type: normal butt / rising butt
- ☐ accessories: indicator bolt / coat hook / ...

9.3.5 Operable partitions

- ☐ operation: individual panels / hinged paired panels
- ☐ accessories: pass doors / work surfaces (chalkboard, dry marker board, tackboard) / pocket doors (to hide stacked panels).

9.4 Raised access flooring

Annex B and C of SANS 1549 gives information on quality verification of components; electrical properties; fire protection and safety; special panels; surface of completed installation; moving and placing of safes and other heavy equipment.

NOTE: this standard has been withdrawn but is regarded by industry as superior to the new (European) standard (SANS 52825). Check with supplier.

- ☐ required fire resistance in minutes: see drawings

20 / 30 / 60 / 90 / 120 / 180 / 240

See note under Section 9.3.

- ☐ required sound insulation grading in dB: see drawings

30 / 35 / 40 / 45 / 50

See note under Section 9.3.

- ☐ class: A / B / C

Class: A, B or C depending on static or dynamic loads. Check with manufacturer.

- ☐ floor panel covering: heavy duty high pressure laminate on particle board P6 / textile / ...

- ☐ degree of corrosion resistance if other than default : ...
- ☐ clear height to underside of floor: see drawings
- ☐ required life of covering: ...
- ☐ details of special floor panels: see drawings
- ☐ whether floor assembly forms part of a plenum system: ...
- ☐ lifting devices: required / not required.

Relevant standards: SANS 10400-L Roofs.

SANS 10218 Acoustical properties of buildings.

SANS 10103 The measurement and rating of environmental noise with respect to annoyance and to speech communication.

SANS 52825 / EN 12825 Raised access floors.

10 Windows, doors, curtain walls, skylights, solar control

10.1 Performance

mechanical performance

☐ site category: 1 / 2 / 3 / 4

Design wind pressure must be specified in terms of SANS 10160. It is derived from the site category and height above ground. Site categories are: 1: open sea, lake shores, flat treeless plains; 2: airfields, parklands, farmlands, outskirts of towns and suburbs; 3 and 4: built-up areas or city centres.

☐ height above ground: ...

☐ plastic, shrinkage and creep deflection of floor slabs: ...

Omit if not relevant. If relevant (curtain walling/ window walling), deflection of floor slabs MUST be specified by a structural engineer.

thermal performance

☐ fenestration unit conductance: see drawings

☐ fenestration unit SHGC: see drawings

Actual Conductance and SHGF-value test results for fenestration units may be obtained from the South African Fenestration and Insulation Energy Rating Association (SAFIERA), representative of the National Fenestration Rating Council (NFRC) in the USA.

fire resistance

☐ fire resistance: ...

sound insulation

☐ sound insulation: ...

General requirements

☐ type: see drawings

residential / industrial / stock / purpose made

☐ type opening section: see drawings

casement / sliding / sash / tilt-and-turn / pivot

☐ handing, whether viewed from inside or outside, including proportion of vertically pivoted casements that opens outwards: see drawings

☐ frame material: see drawings

hot-rolled steel / cold-rolled steel / pressed steel / aluminium / wood / polymer / polymer concrete / composite

Aluminium is durable with low maintenance but highly heat conductive – frames with thermal breaks are acceptable. Wood has good insulating values and strength, but needs regular maintenance. Polymer frames are maintenance free with good insulation value.

☐ glazing from inside: see drawings

For windows not accessible from outside.

☐ shape and size: see drawings

☐ glazing bars: see drawings

☐ burglar bars: ...

to all opening sections / to complete window

Ensure extent to which openable sections can open is acceptable.

pattern: see drawings

☐ insect screens: see drawings

☐ glazing: see drawings

See Section 17.

☐ sealants and seals: ...

see Section 6.

☐ hardware and fixings: see drawings

Hinges (ordinary or projecting), handles, stays, catches, bolts etc.: see also Section 16.

☐ additional security devices: ...

building in

Best way to fit single aluminium frame units is to build in steel or timber subframes, finish all wet trades, and fit window or door at last possible stage. If built in early, protection of frames against damage is required. Another good method is to build and finish openings and make and fit frames to measure – thus also making it possible to fit at last possible moment. Screw fitting of frames can only be done before glazing. Discuss with supplier/installer.

10.3 Steel frame units

☐ factory finish: primed / hot dip galvanized

See notes on zinc coating under Structural Steelwork.

10.3.1 Hot-rolled steel framed units (SANS 727)

Hot-rolled steel frames are not thermal performance rated and will not meet air leakage requirements as specified in SANS 10400 XA or SANS 613 without weather seals. See also cold-rolled steel framed units.

10.3.2 Cell windows

All manganese bars shall display the trade mark TISAT3030tm visible for identification on site.

10.3.3 Pressed steel clisco type window frames (SANS 1311)

☐ type: A / B

A (single rebate surround) / B (double rebate surround)

10.3.4 Pressed steel door frames (SANS 1129)

☐ type: see drawings

single leaf door without fanlight / ditto with fanlight / double door without fanlight / ditto with fanlight / door and frame combination

☐ material of lock strike plate: chromium/cadmium plated steel / brass

☐ hinges: steel / brass

☐ handing: see drawings

☐ size: see drawings

☐ type of profile: see drawings

single rebate / double rebate / half wall width / full wall width

☐ fanlight: see drawings

fixed, with glazing beads / opening hinged bottom / opening hinged top

☐ type of lock/latch: see drawings

additional clauses

Frames for power floated floors need to be shorter, and temporary bracing has to be removed after fixing.

10.4 Cold-rolled steel frame units

Cold rolled steel frames may meet air leakage requirements as specified in SANS 10400 XA or SANS 613. Check with manufacturer/supplier.

10.5 Aluminium frame units

☐ performance class: A1 / A2 / A3

A1 (residential and light commercial); A2 (commercial); A3 (monumental).

Aluminium framed windows, doors and shopfronts manufactured according to the minimum requirements of the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA) are mark-bearing with the mark and number of the test certificate issued by AAAMSA. Consult AAAMSA General Specification for Glazed Architectural Products (Including Energy Efficiency Design for Fenestration).

☐ frame surface finish: anodised / powder coated / liquid organic coated

Anodising is a harder and more abrasion-resistant finish than powder coating, but has a limited choice of six colours (natural through four shades of metallic bronze to black). Colours are light fast but never identical and virtually impossible to match with older or other finishes. Anodising is susceptible to mortar and lime attack during construction. Consult AAAMSA or the Aluminium Surface Finishers Association (ASFA) for the selection of anodized and powder coating thicknesses.

☐ anodising grade: AA15 / AA25

Grade: AA15 (0,015 mm thick, for mild atmospheric conditions in rural environments), AA25 (0,025 mm thick, for polluted atmosphere, sites within 5 km from chemical plants, coastal regions within 25 km from the sea, marine conditions, windy areas where sand causes abrasion). See AAAMSA Surface Finishes.

☐ powder coating colour: ... ; gloss category/finish: mat / satin / high gloss / hammertone / textured.

10.5.1 Windows and glazed doors

☐ colour of gaskets and weatherstrips: black

☐ weatherstrips: renewable.

10.5.2 Skylights

No national standard on skylights exists. The Skylight Association of Southern Africa (SASA, part of the AAAMSA group) is the industry representative body. Consider heat transmission, glare, UV radiation and ventilation carefully. Provide *drawings* at time of tender, if available.

☐ type, shape: see drawings

sloped / pitched / arched / domed / single / composite / openable

☐ size: see drawings

SANS 10400-L: “skylights shall have a maximum opening area of 0,6 m² or, if in the form of a translucent roof sheet, an installed width of 700 mm”.

☐ slope: see drawings

To ensure proper condensation and water infiltration control, and to minimize the accumulation of dirt, inclination of glazing materials should be 15° minimum. Sloping glazing to have sufficient overhang to shed rainwater from significant vertical surfaces.

☐ frame: powder-coated steel / natural aluminium / anodized aluminium / powder-coated aluminium / painted wood / varnished wood

☐ glazing: glass / polycarbonate / acrylic

☐ mounting: flush / curb / integral

☐ fixed or operable: ...

10.5.3 Curtain walling

☐ curtain walling type: ...

site assembled continuous mullions with discontinuous transoms with infill glazing and panels / prefabricated units of framework, glazing and panels / rational design / submit proposals

☐ curtain walling panel construction: ...

external finish / internal finish / core insulation / combustability / surface fire spread.

10.6 Adjustable glass louvre windows

☐ operation: manual / remote control.

10.7 Wood frame units

No national standard exists on wood frame doors and windows, but check compliance with SANS 613. Wood frames should be protected from rain by adequate roof overhangs or extended lintels with drips.

☐ wood species: ...

☐ profile and dimensions: see drawings

10.8 PVC-U frame units (SANS 1553)

☐ profile and dimensions: see drawings

☐ surface finish: matt / glossy.

10.9 Polymer concrete frame units

☐ profile and dimensions: see drawings

- ☐ surface finish: ...
- ☐ sub- and opening frame material: aluminium / cold rolled steel.

10.10 Wood doors (SANS 545)

- ☐ type of door: see drawings

balanced / batten / flush / casement / prehung / security-view / louvre / patterned / screen / sliding / special / stable / cupboard / X-ray / single / paired single swing / paired double swing

- ☐ dimensions: see drawings

610 / 762 / 813 / 864 mm x 457 / 2032 x 40/44 mm

457 mm high doors for cupboards. Entry doors for disabled persons in wheelchairs must be at least 813 mm wide.

- ☐ handing: see drawings

Hand refers to position of hinge when door opens towards viewer. Show first opening leaf of paired doors when important.

- ☐ exposure class: see drawings

2 / 3 / 4

2 (semi-exterior, partly or wholly exposed at infrequent intervals to unprotected open air conditions); 3 (humid interior); 4 (dry interior). Note there is no exposure class 1. Hardwood framed and braced batten doors are heavy duty doors, suitable for exposure class 2.

flush panel doors

- ☐ performance class: see drawings

LD / MD / HD

LD (light duty, hollow core) / MD (medium duty, semi-solid core) / HD (heavy duty, solid core)

Solid core flush panel doors are heavy duty doors suitable for dry interior use only – specify for frequent use and abuse, e.g. schools, public places, hospitals.

Semi-solid flush panel doors are medium duty doors suitable for dry interior use only - specify for general use in office blocks, dwellings, barracks and single quarters, including cupboard doors.

Hollow core flush panel doors are light duty doors suitable for dry interior use only – specify for dwellings or cupboard doors in dwellings only.

- ☐ any special properties: ...
- ☐ finish, and wood species when relevant: see drawings

fibre board / sapele mahogany veneer / plywood / coating

Do not specify veneer when door is to be painted. Other commercial veneer species: maple, cherrywood, beech – check with suppliers.

10.11 Fire doors and fire shutters (SANS 1253)

- ☐ class (fire resistance in minutes) : see drawings

A / B / C / D / E / F

A (60 min) / B or C or D (120 min) / E or F (30 min)

- ☐ type of door: see drawings

single / double / swing / sliding

Manually operated sliding fire doors are normally parked in open position, closing only in event of a fire by means of a fusible link or electric magnet.

- ☐ type of closing device: see drawings

fusible link / electric magnet

Electrical operation is recommended for larger doors that are frequently used.

- ☐ handing: see drawings

Doors forming part of fire escape routes must open in direction of route.

- ☐ size: see drawings

Maximum 4 x 4 m.

- ☐ finish: see drawings

hardboard / galvanized steel cladding

Galvanized steel for heavy duty and external doors or corrosive conditions.

10.12 Garage doors

- ☐ type: up-and-over / sectional overhead / sliding / swing
- ☐ size: single / double
- ☐ framework material: steel / wood
- ☐ cladding/boarding material: hardwood / aluminium / prepainted galvanised steel / primed steel
- ☐ operation: manual / electric / chain drive / hand crank
- ☐ finish: varnish/sealer / paint / powder coated / anodised / epoxy coated
- ☐ locking devices: chrome plated centre lock with spring loaded side catches, interior/exterior padlock bolt and keep / automated (no locking device required)

sectional overhead doors

- ☐ panels: aluminium / aluminium/zinc / galvanised mild steel / prepainted galvanised mild steel / hardwood / glass
- ☐ specialised applications for solid doors: fire-doors SANS 1253 class ... / with fusible link, permanently open / gas leak proof / tornado wind resistant / high-frequency / petrol bomb resistant / acoustic control.

10.13 Roller shutter doors

Roller shutter doors are *suitable* for from counter closures to aircraft hangars, and may be used for security, fire, smoke, gas, wind and bomb control.

Push-up operation is limited to 7,5 m²; chain 8 – 30 m²; crank to 25 m²; electrical to any size.

- ☐ size: see drawings
- ☐ operation: push-up / chain / crank / electric
- ☐ slats: steel / aluminium / solid / see-through/ventilated / double wall / grille / with end-locks
- ☐ grill pattern: ...
- ☐ finish: mill / hot dip galvanised / wet spray / anodised / powder coated
- ☐ canopy enclosing rolling mechanism: required / not required
- ☐ bottom bar in case of sloping floor: sloping / with flexible weatherstrip
- ☐ locking devices: side bolt at waste height / external pad bolt / centre lift lock with external key and internal knob operation / floor level four point slide bolts
- ☐ wicket door 685 x 1830 mm: opening in / opening out
- ☐ additional features required: card readers / inductive loop circuits / automation
- ☐ specialised applications for solid doors: not required / fire-door SANS 1253 class ... / with fusible link, permanently open / gas leak proof / tornado wind resistant / high-frequency / petrol bomb resistant / floor shutter / acoustic control .

10.14 Strongroom/record room doors, ventilators

- ☐ type: see drawings

strongroom / vault / record room

strongroom and vault doors (SANS 949)

- ☐ category strongroom doors: 1 / 2 / 2 ADM

Category: 1 (fire resistance 30 minutes, entry resistance 15 minutes), 2 (30 minutes, 1 h), 2 ADM (anti-disc cutter material)

- ☐ category vault doors: 1 / 2 / 2 ADM / 3 / 4 / 5

Category 3, 4 and 5 resist increasing levels of attack.

- ☐ dimensions: see drawings
- ☐ fittings: see drawings
- ☐ handing: see drawings
- ☐ type and number of locks if other than specified: ...
- ☐ factory finish: primer only / baked enamel / hammertone

fire-resisting record room doors (SANS 1015)

- ☐ type of lock if other than specified: ...
- ☐ finish: baked enamel / hammertone.

10.15 Solar control

- ☐ type: internal / external / fixed / retractable / awning / canopy / blind / louvre
- ☐ material: fabric / metal / concrete / glass
- ☐ fabric: UV-resistant, washable, rot-proof

visible transmission: ...

solar transmission: ...

- ☐ metal: aluminium / prepainted hot dip galvanized steel
- ☐ louvre: fixed / adjustable
- ☐ operation when relevant: manual / automated / from inside.

Relevant standards:

SANS 10400-O Lighting and Ventilation.

SANS 204 Energy efficiency in buildings

11 Plaster, screeds, toppings, terrazzo

11.1 Plaster

- ☐ type: see drawings

cement plaster / gypsum plaster / lime plaster / insulating plaster / barite plaster / waterproof plaster.

11.1.1 Cement plaster (SANS 2001 EM1)

SANS 2001- Construction Works Part EM1: Cement Plaster Admixtures are not permitted in cement plasters to improve workability or improve the properties of the finished plaster.

Specification data:

- ☐ application: single coat / multicoat
☐ finish to cement plaster: smooth / textured / roughcast / bagged / skimmed

Show in drawings: V-joints through full plaster thickness at dpc level and where different materials meet; metal lath strips over roof anchors on single leaf masonry walls, or across joints between different materials – see SANS 2001-EM1.

11.1.2 Gypsum plaster

Do not mix gypsum-based plaster with plaster made with common cement – the sulphate compound in gypsum attacks common cement paste.

11.1.4 Insulating plaster

- ☐ low density aggregate density range: 60 – 160 / 120 – 240 / 450 – 720 kg/m³

60 – 160 (exfoliated vermiculite); 120 – 240 (perlite); 450 – 720 (foamed slag).

Omit if default (800 – 960 kg/m³ (clinker) covered in SANS 2001-EM1) is acceptable.

Barite plaster for use in X-ray rooms. Thickness for general diagnostic X-ray work normally between 15 and 30 mm. Check mix and thickness with requirements.

11.1.6 Accessories

- ☐ expanded metal, type: sheet/plate / angle bead / base bead / corner mesh / plaster lath / plaster stop / rib lath / strip mesh
☐ angle rounded corner protection: 1 500 x 1,0 x 35 mm girth strip, position: see drawings.

11.2 Screeds, toppings, terrazzo

To be published: SANS 2001-EM2 Screeds and toppings.

Screed is a layer of a well-compacted mixture of cement and fine aggregate applied to a concrete base, *suitable* for receiving a floor finish.

Topping is a layer of high-strength concrete designed to provide a dense, abrasion-resistant surface on a concrete base.

Terrazzo is a hard-wearing decorative concrete finish in which crushed or uncrushed aggregate like marble and pigments is used, and of which the surface is generally ground and polished.

Specify screed or topping only where a direct-finished one-course concrete floor is impracticable.

11.2.1 Materials

proprietary surface treatments

Treatments to harden or seal the surface of toppings are not normally required, provided a sufficiently high grade of properly finished concrete is used. They may however be useful in dust sensitive areas or where oil spills or mildly acidic solutions may occur. Expert advice should be sought from the manufacturer/supplier.

- ☐ form: dry shake / coating / screed
☐ to improve: abrasion resistance / chemical impact resistance / slip resistance / density / UV resistance
☐ colour/finish: ...

mesh reinforcement

- ☐ mesh reinforcement: ...

Mesh reinforcement may be required to restrain differential shrinkage stresses and control cracking on precast concrete elements – not normally required.

water

☐ water: SANS 51008

Omit if default (drinking water) is acceptable.

11.2.2 Mix topping

☐ concrete grade: see drawings

20 / 30 / 40 / 50

Topping: 1 part cement to 1½ parts sand to 1½ parts stone would produce a concrete strength of 25 – 30 MPa. Use concrete of at least grade 20 where abrasion resistance is not a consideration; grade 30 for floors for light duty industrial and commercial purposes; 40 for ditto medium duty; 50 for heavy duty industrial, workshops, special commercial; very heavy duty engineering workshops would require a proprietary topping. Consult The Concrete Institute for advice.

11.2.4 Laying

Method of laying as described here is known as "separate bonded construction", where the topping or screed is laid on and bonded to a hardened base. For other methods, for example monolithic construction, and separate unbonded construction, consult SANS 10109 part 2.

Compaction of the mix is most important. Stiff semi-dry mixes not well compacted are a common cause of bond failure. Compact stiff mixes with power-operated equipment such as vibrating screed boards.

Joints in screeds should be minimal. Screeds laid in large areas may crack, but this is more acceptable than curling at edges of small panels.

☐ screed thickness: see drawings

25 – 50 mm

☐ topping thickness: see drawings

25 – 40 mm

☐ edge/feature/dividing strips: see drawings.

11.2.5 Finishing

☐ type of finish: ordinary / hard / colour pigmented / dry shake / surface ground and polished

Ordinary finish is *suitable* for surfaces that are to be covered by flooring. Hard finish is *suitable* for surfaces that are not to be covered with flooring and for toppings that require high resistance to wear (grade 30 and higher).

Hardwearing surfaces like toppings and terrazzo may be ground and polished – not recommended for sand:cement screeds. Grinding tends to create lower slip resistance. Grinding will affect appearance and will remove surface treatments such as dry shakes.

☐ surface smoothness: smooth / non-slip

pigmentation

☐ type: integral (mix with dry cement) / add to freshly laid surface as a dry shake / not required.

11.2.6 Joints

☐ type: isolation joint / intermediate sawn contraction joint / patent movement joint

☐ pattern: see drawings

☐ seal joints: required / not required

☐ patent movement joint system with flexible inserts: aluminium / stainless steel / PVC

Material depends on nature and intensity of traffic. Joints should be sealed when floor is subjected to liquids, hygiene.

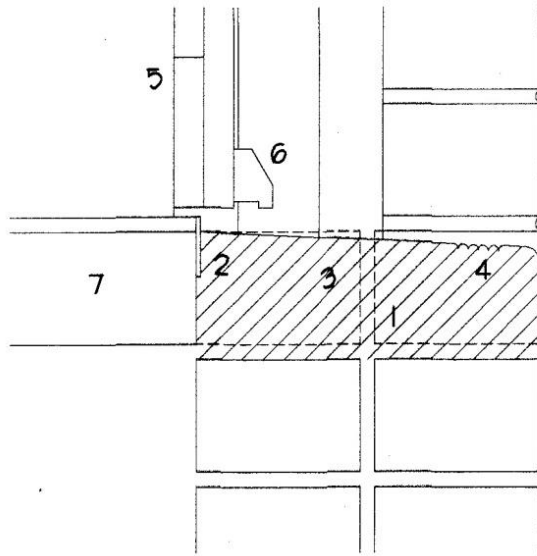
11.2.7 Surface regularity

☐ degree of surface regularity: I (3 mm) / III (10 mm over 3 m in any direction)

Omit if default (II) is acceptable. Check with SANS 10155. In small rooms deviation should be less.

11.2.8 External thresholds

Placing the door in line with the inside wall face allows the joint to be under the door and adds a measure of rain protection to the door.



- 1 break out bricks
- 2 metal edge strip
- 3 in situ or precast concrete threshold with slight fall
- 4 reeding
- 5 external door
- 6 weather bar
- 7 concrete surface bed

11.2.13 Surface sealing

☐ seal floor surface with: one coat non-slip wax polish / epoxy / not required.

Relevant standards:

SANS 10109 Part 2 Finishes to Concrete Floors.

Concrete Basics for Building. 2004. Cement and Concrete Institute.

12 Tiling

12.1 Materials

- ☐ type of tile: see drawings

ceramic / stone / concrete / terrazzo / mosaic

ceramic wall and floor tiles (SANS 1449/13006)

- ☐ group: A1 / A2 / A3 / A4 / B1 / B2 / B3 / B4 / C

Group A (extruded split /quarry tiles) and B (dust pressed tiles) are classified according to their water absorption properties. C=other. Group A1 and B1 have the lowest water absorption ($\leq 3\%$). Fully vitrified porcelain tiles, covered by SANS 13006 only, are frost resistant and suitable for cold rooms etc.. Not all manufacturers produce to SANS 13006.

- ☐ surface: glazed / unglazed
☐ shape, pattern, colour: ...
☐ nominal dimensions: see drawings

200 x 200 / 300 x 300 / 400 x 400 / 500 x 500 mm

- ☐ grade: first grade / second grade

Second grade tiles have minor blemishes.

- ☐ glazed tile abrasion resistance class: 1 / 2 / 3 / 4 / 5 / not required

Abrasion resistance class to SANS 13006: 1 for interior soft domestic footwear such as bathrooms and bedrooms; 2 for interior light domestic traffic such as living rooms; 3 for interior and exterior areas such as domestic kitchens, halls and terraces, and low-traffic commercial areas; 4 for frequent traffic such as public entrances, shops, hospitals, hotel kitchens and exhibition rooms; 5 for severe pedestrian traffic such as shopping malls, airport concourses, sports stadia and factories.

- ☐ slip resistance value (coefficient of friction) : dry ..., wet ... / on stairs and ramps only

For slip resistance, contact manufacturer. Slip resistance is important in public places and on ramps and a requirement for disabled people (SANS 10400-S). Several test methods exist. The Pendulum Test Value (PTV) to BS 7932 is acceptable. PTV 0–24 is high, 25–35 moderate, 36+ low slip potential. A calibrated tester is available in SA. Slipperiness is also affected by use, water, spills and floor care.

- ☐ acid and alkali resistance of glazed tiles: type of chemical ... / not required

stone tiles

No local standard exists on natural stone tiles. Consult supplier/installer.

- ☐ type: natural stone / cast stone
☐ natural stone: slate / quartzite / marble / granite
☐ slip resistance value (coefficient of friction) : dry ..., wet ... / on stairs and ramps only / not required

For slip resistance contact manufacturer.

- ☐ nominal dimensions: see drawings

300 x 300 / 450 x 450 / 600 x 600 x 50 / 65 mm

- ☐ shape: ...; colour: ...

concrete tiles

- ☐ type: concrete / terrazzo
☐ nominal size: see drawings

300 / 450 / 600 x 300 / 450/300 / 600/450 x 50 / 65 mm

mosaic

- ☐ material: ceramic / glass / stone
☐ appearance: glazed / unglazed
☐ colour: ...
☐ size of tesserae: ...

grout

- ☐ proprietary grout: cement-based / organic-based / reaction resin (epoxy)

Epoxy grout e.g. in food storage and preparation and processing areas, abattoirs, breweries, dairies, bottling plants, restaurants, industrial kitchens, hospitals and clinics.

profiled and decorative tiles

- ☐ profiled and decorative tiles: see drawings

skirting / dado / bullnose

accessories

- ☐ edging, trim, stair nosing and movement joint strip material: PVC / aluminium / brass / stainless steel

see also Section 16.

- ☐ profile, size, colour: ...

12.2 Tiling

To be published: SANS 2001-ET Tiling.

bedding

- ☐ external angles: see drawings

mitred / lapped / strip edged / bullnose tile

- ☐ internal sills in bathrooms: see drawings / level / sloping

Sloping sill to prevent internal sills being used as a shelf.

External sills should be tucked in under all window frames - fixed in front of window frame will lead to moisture damage in exposed conditions. See also SANS 2001-CM1.

- ☐ field, border, pattern: see drawings.

12.3 Jointing

Floor tiling joint width may be subject to manufacturer's recommendations, irregularities in the tiles, modular discipline or decorative effect.

Extruded tiles require a wider joint to cater for distortions.

In internal work, laser cut natural or cast stone of precise dimensions may be butt jointed with little or no grout.

- ☐ joint width: ...

Omit if default widths are acceptable.

12.4 Movement joints

- ☐ type: formed in situ / preformed strip / isolation joint / intermediate joint / structural joint

preformed compression joint strip

- ☐ material, colour: PVC / aluminium / brass / stainless steel / ...

Preformed joint strip: PVC is suitable for light traffic, stainless steel for heavy traffic. Check whether chemical resistance is required.

isolation (perimeter) joints

Isolation joint design depends on the wall finish, skirting, hygiene requirements and floor cleaning method, e.g. if regularly washed.

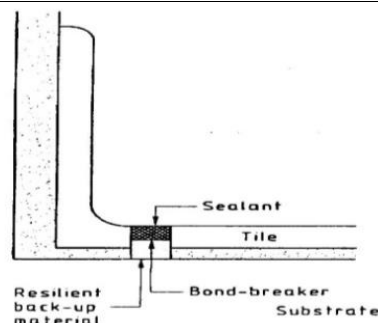


Diagram: Isolation joint where hygiene is important (SANS 10107).

structural joints

In practice structural substrate joints are often not true. Ignoring this fact will result in a tiling joint not uniformly coinciding with the base joint, leading to cracks. Possible solutions are:

- a) if the joint is out of line but straight, consider continuing the joint through the tiling (the joint will not be aligned to the tile joints, but will at least be straight), or
- b) if the joint is irregular within a narrow straight band, consider installing a prefabricated flexible metal joint capable of spanning the irregularity, or
- c) if the joint is out of line and irregular, consider leaving out the row(s) of tiles in which the troublesome joint occurs, and lay the row of tiles over an underlay or in a permanently flexible adhesive, or lay a different flooring material over the joint which is able to accommodate the expected movement, e.g. carpet, thermoplastic, wood or laminate. Reinforce the edges or, in the case of rigid materials, seal both sides of the strip covering the structural movement joint.

Relevant standard: SANS 10107 Design and Installation of Ceramic Tiling.

13 Floor coverings, wall linings

☐ type: see drawings

thermoplastic / wood / textile / epoxy.

13.3 Thermoplastic and similar flexible floor covering

To be published: SANS 2001-EF3 Resilient thermoplastic and similar flexible floor covering.

Consider slip-resistant and tactile floor finishes for disabled persons. See SANS 784 for guidance.

13.3.1 Materials

☐ type: see drawings

vinyl / linoleum / rubber

semi-flexible vinyl floor tiles

☐ tile thickness: 2,0 / 2,5 / 3,2 mm

SANS 581: type of semi-flexible vinyl flooring: 120, 130, 160, 200 (domestic), 250 (heavy traffic), 320 (extra heavy traffic).

pattern: none / marbled / mottled

chemical resistance: ... ; type of chemical ...

flexible vinyl flooring

☐ tile thickness: 2,0 / 2,5 / 3,0 mm

SANS 786: type of flexible vinyl flooring: 125 (1,25 mm, domestic light), 160 (domestic), 200 (commercial, domestic heavy), 250 (industrial light, commercial heavy), 300 (industrial), 320, 360 (industrial heavy).

form: sheet / tile

pattern: none / marbled / mottled

chemical resistance: ... ; type of chemical ...

linoleum sheeting or tiles

Linoleum is manufactured by mixing linseed oil with wood or cork powder, resins, ground limestone and mineral pigments, rolled out onto a jute backing and cured.

☐ thickness: 2,0 / 2,5 / 3,2 / 4,0 mm

☐ form: tile / sheet

☐ shape, size, of tile: ...

☐ colour: ...

☐ finish: unfinished / coated

rubber sheeting or tiles

Recycled and natural rubbers are “green”. Recycled rubber lasts longer. Rubber floors are suitable for sport and industries. Interlocking tiles are interchangeable.

☐ form: tile / interlocking tile / sheet

☐ shape, size of tile: 300 x 300 to 500 x 500 mm

☐ texture: plain / studded / diamond

☐ colour: plain / patterned / speckled

☐ installation method: glued / interlock floating

accessories

☐ skirtings: extruded PVC , height: ...

☐ trim, movement joints: extruded PVC / aluminium / brass / stainless steel

☐ nosings: extruded PVC / rubber / extruded aluminium with non-metallic slip-resistant inlays / solid wood

13.3.2 Laying

☐ pattern: see drawings / straight joints in both directions

• finishing

☐ polymer floor dressing type: 1 / 2

Floor dressing type 1 produces hard coating; type 2 produces soft coating.

13.4 Wood flooring, solid and laminate, on solid substrates

To be published: SANS 2001- EF1 Wood and Laminate Floor Covering.

For the installation of timber suspended floors see Section 4 Structural timber (flooring).

Solid wood floors may be sanded several times during their life span.

Wood and laminate flooring is laid directly on solid cementitious substrates. Solid wood floors are glued or nailed to battens. Laminate floors are floating floors assembled by using a patent click lock system. Wood and laminate floors expand and contract – do not use in wet areas.

SAWLFA South African Wood and Laminate Flooring Association is the industry representative body.

☐ traffic class: 21 / 22 / 23 / 31 / 32 / 33

See SANS 10043 table 1 for a traffic classification according to EN 13329: 21 (domestic moderate, e.g. bedrooms), 22 (domestic general, e.g. living rooms), 23 (domestic heavy); 31 (commercial moderate, e.g. conference rooms, offices), 32 (commercial general, e.g. offices, hotels, classrooms), 33 (commercial heavy, e.g. corridors, stores, schools, halls, open plan offices).

See SANS 10043 table 6 for traffic, hardness, density and shrinkage classification of flooring timbers in common use.

13.4.1 Materials

Solid wood floors may be sanded several times during their life span.

☐ flooring type: see drawings

solid wood strip/block / solid wood parquet/mosaic / plywood / faced plywood or fibreboard / melamine laminates

solid wood strip, block, parquet, mosaic

SANS 281 *Hardwood block and strip flooring* and SANS 978 *Wood mosaic flooring* were withdrawn in May 2009 and not replaced.

☐ species: ...

☐ grade: clear / figured

☐ preservative treatment: ...

Note that some woods are naturally durable.

☐ second-hand blocks: allowed / prohibited

☐ prefinishing: required / not required

faced plywood or fibreboard

☐ facing: natural hardwood / cork / bamboo

☐ species: ...

☐ prefinishing: required / not required

decorative melamine laminate

☐ pattern, colour: ...

☐ built-in underlay: required / not required

☐ prefinishing: required / not required

underlays

☐ required insulating underlay function: acoustic / thermal / noise control / impact (sports)

☐ polyethylene elastic-adhesive underlay:

This is an imported underlay with several advantages, not requiring gluing, nailing or clipping of the floor boards. Check with supplier.

density: 30 / 50 kg/m³

thickness: 2 / 3 / 5 / 10 / 15 mm

adhesive type: permanent / re-usable.

13.4.2 Installation

installation in general

☐ installation method: nail down / glue down / floating / stick down on elastic-adhesive underlay / sprung / as recommended by manufacturer

Underfloor heating has important repercussions for wood and laminate flooring. Check with supplier, SAWLFA.

☐ pattern: see drawings

nail down

Nail down is *suitable* for solid and engineered wood strip on new concrete floors or stairs, on existing rigid floors that are reasonably level, where a dpm is required, and where the total floor covering thickness of about 40 mm can be accommodated. Not to be installed over underfloor heating unless space between battens is filled with a cement:sand mix. Can be installed on walls as panelling.

Nail down floors can reduce impact noise transmission.

13.5 Textile flooring

To be published: SANS 2001- EF2 Textile flooring.

13.5.1 Materials textile flooring

☐ type: pile construction / needle punched construction

☐ colour and design: ...

☐ fire index class: 1 / 2 / 3 / 4 / 5

Fire index: material to be used for floor covering (including underlays) or wall finish is tested in a standard manner and is classified on a scale of 1 to 5. These classifications are based on a "fire index" which in turn represents the effect of rate of burning and the amount of heat and smoke generated. Most good quality floor coverings have a fire index of 1 or 2. See SANS 10400-T table 9 and 10 for required classes for different occupancies.

☐ location grade: U1 / U2 / U3 / U4 / U5

Location grade: U1 (light domestic); U2 (medium domestic); U3 (heavy domestic, light commercial); U4 (medium commercial); U5 (heavy commercial).

carpet underlays

☐ type: fibrous / foam / contractor's choice

Underlays: needled fibre, foam rubber, latex bonded fibre or composites. A carpet should be fire tested with its underfelt, since no fire classification for underfelt is currently available. Underfelt makes an important contribution to impact sound insulation, and to airborne sound absorption provided the carpet has a porous backing.

13.5.2 Installation

Seams should run parallel to length of area (so that traffic moves along rather than across the seam) and so that light from windows does not strike across the seam. Pile should face away from incident light and downwards on stairs.

13.6 Epoxy flooring

Epoxy floors are hard-wearing and have excellent resistance to chemicals, oils etc.

☐ aggregate colour, size: ...

application

☐ position of edge/dividing/feature strips: see drawings

☐ thickness: 1 – 6 mm

☐ finish: smooth / exposed aggregate finish.

Relevant standards:

SANS 10043 The installation of wood and laminate flooring

SANS 10070 The laying of thermoplastic and similar types of flooring.

SANS 10170 The cleaning and maintenance of floors.

SANS 10177 Fire testing of materials, components and elements used in buildings.

SANS 10186 The installation of textile floor coverings.

SANS 10245: The maintenance of textile floor coverings.

SANS 2424 Textile floor coverings – vocabulary.

SANS 10400-J Floors.

SANS 13746 Textile floor coverings – guidelines for installation and use on stairs.

14 Painting, paperhanging

To be published: SANS 2001-EP Painting.

14.1 Materials

primers

Standards for red lead or red lead/red oxide primers, zinc chromate primers, calcium plumbate primers, metallic lead primers have been withdrawn due to toxic lead content.

undercoats

Universal undercoats are *suitable* for interior and exterior use for subsequent application of solvent-borne finishes, especially gloss finishes.

☐ universal undercoat grade: 1 / 2 / as required

1 (high hiding), 2 (utility grade).

finishing paints alkyd

Alkyd paint, also known as enamel paint, is solvent-borne.

☐ alkyd high gloss finishing paint (SANS 630) grade: 1 / 2 / as required

1 (high hiding), 2 (regular hiding).

☐ decorative paint for interior use (SANS 515) type: semi-gloss / flat

emulsion

☐ emulsion paint (SANS 1586)

grade: 1 / 2 / 3 / 4

Grade: 1 (high hiding, scrub resistant), 2 (high hiding, washable), 3 (general purpose, washable), 4 (utility, interior only)

Emulsion paint is water-borne and suitable for application over plaster and masonry substrates. Grade 1, 2 and 3 is suitable for interior and exterior use, grade 4 for interior use only.

gloss designation: matt / semi-matt / semi-gloss

☐ textured emulsion wall coating (SANS 1227)

type: 1 / 2 / 3 / 4

1 (smooth aggregate-free), 2 (low-relief, sand-textured finish), 3 (high-relief, coarse-textured)

☐ fungus resistance: required / not required

Aluminium paint is typically an alkyd resin binder pigmented with flake aluminium.

Micaceous iron oxide paint is typically solvent-borne. Masonry paint may be solvent-borne or emulsion type.

varnishes, varnish stains, stains, sealers

Varnishes are transparent or semi-transparent.

Stains have no protective or preservative properties and are *suitable* for interior work only.

☐ varnish or varnish stains for interior use (SANS 887)

type: 1 / 2

1 (general purpose), type 2 (heat and chemical resistant)

gloss designation: glossy / eggshell

bituminous and tar-based coatings

Bitumen-based coatings for interior and exterior use on primed metal, masonry, fibre cement, wood, roofing felt, creosoted timber, hard bituminous surfaces.

specialized coatings

Epoxy and polyurethane coatings have superior resistance to abrasion and chemicals. One-pack materials usually do not have the same resistance as the two-pack types. They require a high standard of surface preparation.

14.2 Preparation of surfaces

☐ hardware etc.: remove, mark, store and refix / mask.

14.3 Colours

Specify colours on schedules. There is a marked difference in price for various colours, especially bright colours.

- ☐ identification colour marking (pipes etc.): required / not required.

14.8 Paint systems for on-site application

- ☐ paint system: see drawings

alkyd / emulsion / textured emulsion / masonry / cement / lime / varnish / aluminium / heat-resistant / sealer / intumescent

- ☐ colour: see drawings.

14.8.1 Cement-based surfaces, brick and stone alkyd paint

Alkyd-based coatings are sensitive to alkali. Alkali-resistant sealers are required on cement plaster and off-shutter concrete.

14.8.3 Wood transparent finish systems for wood (interior)

In transparent finishes the darker colours are more durable because they absorb ultraviolet light more effectively, but increase solar heat gain so that the moisture content of the wood decreases more rapidly. Varnish is not recommended on exterior wood.

14.8.5 Plastics paint on unplasticized polyvinyl chloride (PVC-U)

A two-pack wash primer is no guarantee for proper adhesion of conventional paint systems. No general specification can be made with regard to the painting of plastic coatings. Seek expert advice.

14.8.6 Intumescent paint

- ☐ surfaces requiring intumescent paint: ...

Intumescent paint enhances fire resistance by limiting spread of flame. Check compliance with fire regulations.

14.9 Paperhanging

wallpaper

- ☐ type, pattern, colour: ...

Relevant standards:

SANS 10064: Preparation of steel surfaces for coating.

SANS 10305: Painting of buildings:

Part 1: Paint and paint selection.

Part 2: Paint application and defects.

Part 3: Paint types.

Part 4: Painting of walls, ceilings and cladding.

Part 5: Painting of roofs and steel structures.

Part 6: Painting of wood.

15 Furniture, equipment, stairs, architectural metalwork

15.1 Joinery

For wood doors and windows see Section 10.

15.1.1 Solid wood wood

☐ type: hardwood / softwood / laminated wood

hardwood

☐ species: ...

SANS 1099 includes requirements for preservative treatment. Annex C gives properties of 29 hardwood species, local or exotic.

softwood

☐ species: ...

laminated timber

☐ exposure class: 1 / 2 / 3 / 4

1 (exterior); 2 (semi-exterior); 3 (humid interior); 4 (dry interior).

☐ type of wood: hardwood / softwood

☐ species: ...

15.1.2 Wood board

☐ type: plywood / composite board / decorative melamine-faced boards (MFB) / fibreboard / particle board / oriented strand board (OSB)

plywood and composite board (SANS 929)

☐ exposure class: 1 / 2 / 3 / 4 / as required

1 (exterior); 2 (semi-exterior); 3 (humid interior); 4 (dry interior).

☐ type board: ply / composite

☐ type plywood: commercial / marine / structural

☐ type composite board: batten board / blockboard / laminated board / high-pressure decorative board / veneered particle board / veneered fibre board

☐ thickness plywood: 3 / 6 / 9 / 12 / 15 / 18 / 22 mm

☐ number of plies or laminae: 3 / 5 / 7

Number of plies are always odd.

☐ veneer: species..., rotary cut / sliced

☐ plywood grade: S / A / B

S (select, for decorative applications), A (furniture, for joinery where it may be reworked), B (standard, to be covered, coated or painted).

decorative melamine-faced boards (MFB) (SANS 1763)

MFB is low pressure melamine on particle board or MDF, suitable for medium duty vertical and light duty horizontal surfaces e.g. shelving – not for kitchen and office desktops.

☐ core: particle board / MDF

☐ thickness: 9 / 12 / 16 / 18 / 22 / 32 mm

Board size 3,6 x 1,8 m.

☐ shelving edge: sapele-print / melamine

☐ surface finish: smooth matt / textured / embossed wood grain

☐ moisture resistant board: required / not required

fibreboard (SANS 540)

☐ type: insulation board / medium density fibreboard (MDF) / tempered hardboard

MDF has a fine structure allowing for traditional wood-working techniques like moulding, embossing, routing and edge profiling.

- ☐ thickness of tempered hardboard: 3,2 / 4,8 / 6,4 mm / as required

Hardboard can be bent by cold-dry, cold-moist and hot-moist bending techniques. Consult manufacturer. For full range of thicknesses see SANS 540.

- ☐ moisture content range: ...

particle board (SANS 50312)

- ☐ type: P2 / P3 / P4 / P5 / P6 / P7 / as required

P2 (general purpose, dry conditions); P3 (interior fitments, dry conditions); P4 (load-bearing, dry conditions); P5 (load-bearing, humid conditions); P6 (heavy-duty, dry conditions); P7 (heavy-duty, humid conditions).

- ☐ thickness: 12 / 16 / 18 / 22 / 25 / 28 mm / as required

oriented strand board (OSB) (SANS 472)

- ☐ type: OSB/1 / OSB/2 / OSB/3 / OSB/4 / as required

OSB/1 general purpose dry interior; OSB/2 load-bearing dry conditions; OSB/3 load bearing humid conditions; OSB/4 heavy-duty load-bearing humid conditions, e.g. walls, floors, roofing, I-beams.

- ☐ thickness: 6 / 9 / 12 / 15 / 18 mm / as required

15.1.3 Polymer laminate and solid surfaces

high pressure decorative laminates (HPL) (SANS 4586)

HPLs consist of layers of phenol formaldehyde impregnated sheets of Kraft paper with melamine formaldehyde (MF) impregnated décor and overlay paper, pressed together. Normally glued to suitable board with a backer laminate for balance, but can be self-supportive (solid core).

- ☐ material type: S / F / P / as required

S (standard) / F (flame-retardant) / P (postformable).

- ☐ grade/duty class (wear, impact and scratch resistance) : 1 / 2 / 3 / 4 / / as required

1 (light duty, post-forming), 2 (vertical surface), 3 (general purpose), 4 (heavy duty)

General Purpose grade, thickness 1,2 / 1,5 / 2,0 / 2,5 / 3,0 / 3,5 / 4,5 mm: for work surfaces on counters, vanities, desks and tables, and for vertical surfaces like wall panels and front panels of work stations in hospitals, airports and restaurants.

Vertical Surface grade: for cabinet walls, door and drawer panels, desks, restaurant booths, architectural cladding.

Light duty/post forming grade, thickness 0,35 / 0,6 / 0,8 / 1,0 mm: for rounded edges.

Heavy duty, thickness 6,0 mm

- ☐ thickness: light duty and post forming: 0,35 / 0,6 / 0,8 / 1,0; general purpose: 1,2 / 1,5 / 2,0 / 2,5 / 3,0 / 3,5 / 4,5 mm; heavy duty: 6,0 / as required

Omit if default (1,2 mm for grade 3 (general purpose) and 1,0 mm for grade 1 and 2 (vertical surfaces and post forming) is acceptable.

- ☐ surface finish, colour, texture: smooth matt / textured / embossed wood grain / writing

- ☐ solid core grade: interior grade / exterior grade

- ☐ thickness interior grade: 3 / 6 / 8 / 10 / 20 mm

- ☐ thickness exterior grade: 20 mm

Solid core for horizontal and vertical work surfaces; exterior grade for vertical surfaces only, e.g. cladding, balustrading and signage.

Check thickness and usage with manufacturer.

continuous pressed laminates (CPL)

CPLs are supplied in 100 –150m rolls.

- ☐ grade/duty class, thickness: HGP / VGP / VLP / as required

HGP (horizontal, general purpose, postformable), thickness 0,6 mm, wear index number 3, impact index number 2, scratch index number 2; VGP (vertical, general purpose, postformable), 0,6 mm, 2, 2, 2; VLP (vertical, light duty, postformable), 0,35/0,5 mm, none, 2, 2.

- ☐ colour, pattern: ...

polymer solid surfacing material

- ☐ colour: ...
- ☐ inlays: ...
- ☐ form: ...

15.1.4 Stone surfaces

stone surfacing material

- ☐ type: ...
- ☐ thickness: ...
- ☐ edge: ...
- ☐ form: ...

15.1.5 Steel tubes for furniture**steel tubes for furniture SANS 657-4**

- ☐ material and grade: mild steel 230 / 250 / stainless steel class A type 1 or 2, grade 304
- ☐ size, profile: see drawings

Size, profile: 16, 20, 25, 32, 38, 40, 50, 60, 70 mm $\varnothing$ (round steel); 16, 20, 25, 32, 50 mm (round stainless steel); 30 x 16 mm (oval steel); 20 x 20, 25 x 25, 32 x 32, 40 x 40, 50 x 50, 65 x 65 mm (square steel); 25 x 25, 32 x 32 mm (square stainless steel); 50 x 20, 50 x 25 mm (rectangular steel and stainless steel)

- ☐ wall thickness: see drawings

0,9 / 1,2 / 1,6 / 1,8 / 2,0 mm, depending on material.

- ☐ stainless steel finish: mill / matt / polished / mirror.

15.1.6 Joinery

general

Climate zones: inland / coastal. Inland zones represent over 90% of South Africa's climate, made up of an average 8% moisture content, including air-conditioned indoor areas.

- ☐ wood sizes: see drawings

Wood sizes: show finished sizes of timber members on drawings to avoid arguments about tolerance: 25 mm nominal size reduces to 22 mm after planing, 38 to 32, 50 to 44, 76 to 68, 114 to 105, 150 to 140, 228 to 118 mm.

Check available board sizes to ensure optimum yield and to avoid unnecessary waste.

Marine ply is a superior choice to moisture resistant particle board in wet areas.

- ☐ exposed edges of veneered composite board: solid wood edging to match veneer and to full thickness of board

grain, pattern

- ☐ direction of grain or pattern: see drawings

Omit if default (vertical on vertical surfaces, parallel to walls on horizontal surfaces) is acceptable.

backs

- ☐ backs to fittings: 4,8 mm hardboard / 16 mm ply/composite board / contractor's choice / not required

drawers

- ☐ drawer construction: see drawings

Omit if default construction is acceptable.

shop painting

- ☐ delivery of joinery on site: knot and prime / knot and prime hidden faces only / brush apply one coat clear finish as specified under Section 14 / reaction lacquer spray paint

Omit if fully painted (default) is acceptable.

15.1.7 Fixing

Consider tables, counters and shelves at a variety of heights to accommodate standing, sitting and a range of different tasks for disabled persons.

wood cornices, skirtings, quarter rounds, rails

- ☐ material: solid hardwood / medium density fibreboard / ...
- ☐ size and profile: see drawings.

15.2 Commercial kitchen cupboards (SANS 1385)

SANS 1385 covers 8 types of kitchen unit cupboards of steel sheet, composite wood board or solid timber. Kitchen Specialist Association (KSA) is the national trade association of kitchen fitting manufacturers. Consider specifying that the manufacturer/installer is a registered member.

- ☐ type of unit: see drawings

base / sink / was trough / wall / combination / corner / special / floor mounted tall cupboard

- ☐ colour: ...
- ☐ type of stainless steel for sinks, wash troughs, worktops: AISI-304 / AISI-430
- ☐ finish on mild steel fittings, handles, fasteners: electrodeposited nickel-chrome / zinc and cadmium
- ☐ type of wood: solid / laminated / hardboard / plywood / particle board / low pressure decorative board / laminated veneer board / as required
- ☐ material of work tops: composition board / stainless steel / ceramic / mosaic
- ☐ edging of worktops: hardwood / plastic moulding / extruded aluminium / self-edging (same material as top) / aminoplastic / high-pressure decorative laminate
- ☐ number and position of bowls: see drawings
- ☐ material of casings: sheet steel / solid timber / composite (particle board with laminates)
- ☐ material and construction of doors: steel butts / sliding / wood / composite board / glass panel
- ☐ locks: cylinder / lever
- ☐ region: inland / coastal region
- ☐ wood finish: raw linseed oil / lacquer varnish / bees wax and turpentine / epoxy resin
- ☐ dimensions: see drawings

Floor units: 300, 400, 450, 500, 600, 900, 1000, 1200, 1500, 1800, 2100 x 525, 600 x 900 mm; wall units: ditto length x 300 x 300, 600; tall units: 500, 900 x 525, 600; wash trough units: 450, 900, 1050, x 525, 600 x 900 mm / for non-modular dimensions, consult manufacturers.

- ☐ type door, arrangement of drawers, shelves: see drawings

Additional items

- ☐ plinths or any other part of wood cupboards in contact with the floor or wet areas, e.g. sinks, food preparation: solid hardwood / marine plywood / moisture resistant particle board / moisture resistant medium density fibreboard.

Composite wood and softwood swells or rots in contact with moisture from floor cleaning operations.

15.3 Commercial steel furniture (SANS 757)

- ☐ type of unit: see drawings

stationary cupboard / linen cupboard / pigeon-hole cupboard / locker / wardrobe / filing cabinet / card-index cabinet

- ☐ class, colour and texture of paint finishes: enamel or powder class 1 / 2

enamel or powder class 1 (minimum 0,06 mm thick) / 2 (minimum 0,03 mm thick)

- ☐ metal finishes: chromium / zinc / cadmium
- ☐ powder coated finishes SANS 1274: type 1 / 2 / high gloss / satin / matt
- ☐ number of drawers, adjustable shelves: ...
- ☐ type hinges: ...
- ☐ type of locking system: cylinder / latch rod / latch plate
- ☐ type of adjusting strip: ...
- ☐ mirrors in wardrobes: see drawings
- ☐ fire resistance rating of vertical plan filing cabinets: ...

15.4 Metal counters, balustrades, cladding, signs, street furniture

☐ material: see drawings

stainless steel / aluminium / prefinished metal

stainless steel

Stainless steel is low carbon steel containing >11% chromium (Cr), providing the steel with a corrosion resisting passive film.

Stainless steel classes are austenitic (300 series) and ferritic (400 series). Each class has several grades. Austenitic stainless steel grade 304 (European Norm 1.4301) is normally used for street furniture, shop fronts, doorways, counters, balustrades, cladding, signs, roofing and street furniture. Use grade 316 in corrosive regions. Ferritic stainless steel is used only in interior applications of a non-aggressive nature.

Locally produced stainless steel is available in flat products, forgings and castings. Hot-rolled flat sheet is 3 – 50 mm thick, cold-rolled 0,4 – 3 mm thick. Sections like angles, channels, welded pipe and tubes are cold-rolled from flat sheet. Other grades and products are imported.

Stainless steel mill finishes can be annealed, pickled or polished. Processed finishes are achieved by grinding, polishing or buffing. Stainless steel can be coloured, acid-etched, mirrored, electro-polished, perforated, expanded, meshed or screened.

Choose the correct grade with consideration of the building's location, prevailing environment and climate.

Design stainless steel elements to avoid receiving run-off water from other metals, or concentrated flows of rainwater over parts of the element. Designs must cater for the facilitation of regular cleaning.

Consult the Southern African Stainless Steel Association (SASSDA).

☐ austenitic stainless steel grade: 304 or 304L / grade 316 in the coastal region 3 – 4km from the coast

☐ finish: annealed and pickled mill finish / polished / coloured / etched / mirrored / electro-polished

☐ form: see drawings

sheet / section / perforated / expanded / meshed / screened

aluminium

☐ finish: mill / anodising / liquid organic coating / powder coating

☐ colour: ...

☐ finish: matt / satin / high gloss / hammertone / textured

prefinished sheet metal products

Organic film coating on steel, aluminium, stainless steel for interior and exterior use.

☐ type: 1 / 2a / 2b / 3 / 4 / 5a / 5b / 6a / 6b / as required

1 (interior, requiring further application after fabrication); 2a (dry areas); 2b (wet corrosive areas); 3 (mild to moderate rural, urban, tropical and industrial environments); 4 (marine and industrial); 5a (severe marine); 5b (heavy industrial and industrial marine); 6a (very severe marine); 6b (very severe industrial)

☐ colour: ...

☐ finish: flat / semi-gloss / gloss

☐ dry film thickness: ...

☐ type of substrate: hot dip galvanized steel / aluminium / stainless steel

15.5 Stairs and ramps

☐ type: see drawings

straight / spiral / dogleg / combination / helical / security/fire / enclosed

The rule in SANS 10400 – M of a minimum going of 250 mm and a maximum rise of 200 mm often leads to a disregard for another rule, i.e., “*any stairway ... shall have dimensions appropriate to its use*” (NBR part M Stairways). The full range of a more comfortable and safer proportion within the rule that “*the sum of the going and twice the riser is not less than 570 mm and not more than 650 mm*” would be: 180/280 mm; 170/280 – 310 mm; 150/280 – 350 mm and should be used in most public buildings.

Public ramps must have a safe gradient and frequent landings for disabled persons. Check with SANS 10400-S.

☐ structure: see drawings

painted mild steel / stainless steel / wood, species

☐ treads: see drawings

wood, species ... / stainless steel / steel / glass

☐ balustrade / handrail: see drawings

stainless steel / wood / glass / polymer concrete.

Relevant standards:

SANS 10400-M Stairways.

SANS 10400-S Facilities for Persons with disabilities.

SANS 10104 Handrailing and balustrading (safety aspects).

16 Hardware

Hardware information should appear on door, window or finishes schedules.

16.1 General

☐ type: see drawings

lock / latch / handle / plate / closer / hook and eye / bracket / hinge / bolt / door stop / door knob / door knocker / sanitary / furniture / curtain rail / edge or feature strip / sunken door mat / signage / drawer runner

☐ fire door hardware type: see drawings

escape hardware / panic bars / locksets with thumb turns / fire bolts

☐ material: see drawings

steel / stainless steel / aluminium / brass / nylon / ceramics / porcelain / wood

finish

For finishes on metal see SANS 1171 Annex C.

☐ finish: see drawings

natural / brass plated / copper plated / chrome plated / zinc plated / nickel plated / sherardised / cadmium plated / phosphated / passivated / antiqued / epoxy coated / powder coated / anodised

☐ sherardising coating thickness class: 15 / 30 / 45

15 µm normal indoor/outdoor / 30 µm severe outdoor / 45 µm highly severe outdoor/industrial/ marine.

☐ electroplating service condition: 1 / 2 / 3

1 (mild), 2 (moderate), 3 (severe)

Commercially plated fasteners are mostly sold with minimum corrosion protection, suitable only for dry interior conditions (corrosion resistance class C1). Thicker plating implies a special order (contact SAMFA – SA Metal Finishers Association – for details).

Rather specify solid brass, stainless steel or sherardized steel (30/45) for exterior or wet interior conditions, or ensure that plated products are protected by an appropriate paint system.

☐ appearance: bright / dull / satin.

16.2 Fasteners

☐ fastener type: bolt / screw / nut / washer / pin / rivet

☐ metal screws for wood, type: countersunk-head / round-head / raised countersunk-head / slotted or cross recess drive / hexagon-head / scant shank

☐ material and size: steel / brass / silicon-bronze / aluminium / stainless steel

☐ mild steel nails: type...; finish...

See SANS 1700 for full list of fastener types.

For roof/cladding fasteners see Section 7.

16.3 Locks, latches, catches, bolts

☐ type lock: see drawings

mortise / rim / cylinder / cupboard / drawer

☐ type handle: see drawings

lever / knob

☐ type latch: see drawings

mortise / cupboard / finger

☐ type catch: see drawings

magnetic / ball / roller

☐ type of bolt, size: see drawings

barrel / flush / tower / stable / extension / size

SANS 10400-S stipulates that door handles should be 450 mm away from any wall.

Consider handles, levers and controls that are easy to operate by disabled persons. SANS 10400-S: The manual operation of handles, taps, levers, switches, locks, control mechanisms and keys is in part affected by their design. The selection of controls requiring a 'twist-action' of the wrist and hand, and fine-finger movements should be avoided.

- ☐ hardware on fire doors: see drawings

padlocks

- ☐ type: see drawings

keyed / combination / masterkeyed

- ☐ duty: medium / heavy

- ☐ material: see drawings

brass / iron / chrome plated brass / aluminium / stainless steel

- ☐ size: see drawings

40 / 50 / ... mm

keys

- ☐ master and grand master keys: see drawings.

16.4 Hinges

hinges for lightweight doors

- ☐ type: see drawings

piano / pivot / flush / european (adjustable) / strap

hinges for medium to heavy doors

- ☐ material: see drawings

steel / stainless steel / brass / bronze

- ☐ number of hinges for fire doors: see drawings.

16.5 Door closers

- ☐ type: see drawings

surface-mounted / concealed in frame / concealed in floor / concealed in door / overhead / floor / manual / automatic

Consult AAAMSA Technical Publication: Hardware, Door Controls etc.

Ensure surface mounted overhead closers do not hit the wall when opening.

All fire doors are required to be fitted with closers (NBR), usually overhead. Do not fit a mechanical hold open arm to a fire door. Use concealed mechanisms in hygienic areas.

For concealed floor types, ensure floor spring box depth of up to 75 mm can be accommodated.

Specify a higher strength closer for exposed, windy or draughty conditions. Specify a lower strength for narrow doors.

Double doors with rebated meeting stiles must be fitted with a door selector to ensure the inactive leaf closes first.

- ☐ floor springs, consisting of a floor spring unit set into the floor, bottom and top door strap of size and finish: see drawings

Size depends on door size and weight – see manufacturer's literature.

16.6 Pelnets, curtain rails, rods, blinds

pelnets

- ☐ type, size and profile: see drawings / wood / metal / fabric

rails with rollers or glides

- ☐ track: single / double

- ☐ duty class: light / heavy

- ☐ finish: ...

- ☐ cord: with / without weighted cord pulleys

rods with rings

- ☐ rod, rings, end caps: wood / aluminium / steel

tie backs

- ☐ tie backs: ...

indoor venetian blinds

- ☐ slat width: 50 / 35 / 25 mm
- ☐ headbox: steel / aluminium
- ☐ type of ladder web: reinforced plastic / woven cotton / knitted cords

16.7 Edge, feature, dividing strips

- ☐ strip material: solid brass / aluminium / hot dip galvanized steel / PVC
- ☐ colour of plastic: ...

16.8 Sunken door matting

- ☐ material: natural coconut fibre with PVC backing / rubber / interlocking aluminium channels with plastic inserts / light or heavy-duty loop matting.

16.9 Number/name plates, safety signs

Type, letter size, position, message etc. should be given in schedule form.

Signs may be grouped: general information signs; hospital signs; safety signs; signs for disabled persons; statutory signs, e.g. fire safety.

- ☐ type: changeable plate system / variable room identification system / changeable letter system / illuminated signs / in-house signage / statutory signage

Changeable plate system: fixed plate holders to which may be attached or inserted removable interchangeable sign plates; variable room identification system: fixed room numbers and removable name strips; changeable letter system: holders into which can be inserted removable individual letters, numbers, etc.; illuminated signs: cabinet enclosing a light source illuminating a translucent face panel bearing the specified signage; in-house signage: project specific signs

- ☐ materials: aluminium / plastic / stainless steel
- ☐ colour: ...

symbolic safety signs

- ☐ type: PV / MV / WW / FB / GA

PV (prohibitory – circular, red), MV (mandatory – circular, blue), WW (warning – triangular, yellow), FB (informative, fire-fighting – square, red), GA (informative, general – square, green)

- ☐ reflectivity, luminosity: standard (non-reflective) / self-luminous (radio luminescent) / internally illuminated / retro-reflective or photo luminescent / decal / embossed
- ☐ size: 100 x 100 (WW7 only) / 150 x 150 / 190 x 190 / 290 x 290 / 440 x 440 / 880 x 880 mm)

See SANS 1186 Annex C for positioning, fixing, illumination and maintenance of signs.

16.10 Drawer runners/slides

- ☐ type commercial ball-bearing runner: normal / self-closing / soft-closing / push-locking
- ☐ load capacity: 30 kg static / 45/90 – 160 kg (heavy duty)
- ☐ extension: full / three-quarter.

Relevant standards:

SANS 10140 Identification colour marking.

17 Glazing

SAGGA – South African Glass and Glazing Association – is the trade association and AAAMSA member.

17.1 Materials

glass

Clear and tinted float glass is made in South Africa by one manufacturer in Springs.

☐ type of glass: see drawings

float / safety / security / pattern / tinted / insulated / polymer

☐ float glass thickness: see drawings

Local float glass thickness: 3, 4, 5, 6 and 10 mm.

☐ laminated safety glass interlayer strength class: NS / HPR / HI

NS (normal strength), HPR (high penetration resistance), HI (high impact).

☐ bullet-resistant glass: class and level of attack: GA / GC / RA / RB / SB

Safety and security glass is made by several local manufacturers. Laminated safety glass is made with a poly-vinyl butyral interlayer (0,38 mm for Normal Strength (NS); 0,76 mm High Penetration Resistant (HPR); 1,14mm High Impact (HI)); or a cast in place polyester resin interlayer, available in one thickness only (0,5 mm Normal Strength). SANS 1263 provides for three applications, i.e. human contact, burglary and firearms. See SANS 1263 for bullet-resistant glass classes and level of attack.

☐ pattern glass thickness: 4 / 6 mm; colour: clear / amber / bronze; pattern: ...

All patterns cost the same.

☐ tinted glass: heat-absorbing / heat-reflecting / glare-reducing

☐ insulated glass units (SIGU's) : 6/12/6, low-e surface #2, dehydrated air filled gap / ...

6/12/6 denotes glass-space-glass. Common insulated glass thickness range (glass-space-glass) in South Africa is 20–28 mm. Life expectancy of double glazing in South Africa has not been recorded. Northern hemisphere experience indicates 7–12 years, 20 years being exceptional.

☐ coloured glass: ...

☐ work on glass: cutting / obscuring / acid embossing / silvering / gilding / staining or painting / bending

polymer glazing

☐ polymer glazing type: PC / PMMA / PVC clear / GRP / PS / PET / single wall / multi-wall

Available polymer glazing materials are polycarbonate (PC), polymethyl methacrylate (PMMA or 'acrylic'), polyvinyl chloride (PVC), glass-fibre reinforced polyester (GRP), polystyrene (PS), polyethylene terephthalate (PET). PC and PMMA is available in sheet sizes 1 250, 1 500 or 2 050 wide by up to 6 m long by 1,5 – 6 mm thick. They can be cold bent to minimum radii of 300 x thickness for acrylic, or 100 x thickness for polycarbonate.

Outstanding properties of polymer glazing are impact strength (polycarbonate 250x glass), light transmission, light weight, weather resistance, thermal insulation in multi-wall construction (40% better than glass). Typical applications: rooflights, industrial roofs, commercial greenhouses, shopping centres. Polycarbonate is self-extinguishing, acrylic burns like hardwood. No toxic fumes are claimed. Make generous allowance for thermal movement.

17.2 Glazing

17.2.2 Structural glazing

☐ design: by *competent person* (glazing) / submit proposals

Structural glazing depends on stringent quality tests and checks, for example the pretreatment of aluminium, surface finishing, sealants, and factory and site care. Check with AAAMSA.

A butt joint in structural glazing is assumed to have no structural strength.

Check underwater glazing, glazing for fire protection, for control of reflections in shop windows, for solar control, for one-way vision, unframed glazing, suspended glazing, glass floors, glazing with channel profiles, glazing with plastics and patent glazing, with manufacturers, specialists and SANS 10137.

17.2.3 Protection and cleaning

Anti-sun glass can be permanently damaged by mortar or plaster splashes. Specify precautions if risk is high.

17.3 Mirrors

☐ type: silvered clear glass / silvered coloured glass / stainless steel / privacy

silvered mirror backs are easily damaged. Silvered obscure glass also available. Stainless steel for vandal proof areas.

☐ size and position: see drawings

Consider full length mirrors in public places for children and disabled persons.

☐ coloured glass: pink / gold / bronze / black

Relevant standards:

SANS 10137 The installation of glazing materials in buildings.

SANS 1263 Safety and security glazing materials for buildings.

SANS 10400-N Glazing.

SANS 2001-CG1 Installation of glazing.

Relevant sources:

Selection Guide for architectural Aluminium Products. AAMSA.

Skylight Association of Southern Africa.

18 Drainage, sewerage, water and gas supply, fire equipment, sanitary plumbing

18.1 Roof eaves drainage

18.1.2 Gutters and downpipes

- ☐ gutter type: see drawings

eaves / valley / box / parapet/chimney

- ☐ material: Z275 / Z450 / Z600 / AZ150 / AZ200 hot dip galvanised steel sheet / uncoated steel painted on-site / aluminium / copper / U-PVC / fibre cement / prepainted

Galvanized sheet: Z275 or AZ150 for inland use; Z450/ Z600 or AZ200 for the *coastal region*, prepainted for corrosive industrial use. Commercial standard rainwater goods are made of 0,4- or 0,5-mm thick sheet.

- ☐ profile: see drawings

half round / square / rectangular

- ☐ size: see drawings

100 x 75 mm, or 100 / 125 / 150 mm half round (domestic); 125 x 100 (institutional); 150 x 100 / 200 x 150 / >225 x 225 (industrial). Sheet metal gutter standard lengths: 1,8; 3,0; 3,6; 4,8; 5,4; 6,0 m.

Gutter and downpipe sizes are determined by roof area and rainfall region in accordance with the requirements of SANS 10400-R: summer rainfall area: 140 mm²/m² roof area served; year-round rainfall area: 115 mm²; winter rainfall area: 80 mm². Downpipe internal size: 100 mm²/m² roof area served or 4400 mm² (75 mm diameter). For more information on gutter design, e.g. risk, rainfall intensity, hail and outlet protection, launders, drop boxes etc. see The Red Book – Southern African Steel Design Handbook, Section 11.

accessories

- ☐ outlet drop boxes: funnel shaped

Drop boxes for box gutter outlets improve flow and reduce stoppage by debris.

- ☐ overflow weirs in box gutters: required

- ☐ hail guards: see drawings

removable / pedestrian trafficable

Hail guards over gutters act as protection against hail, as maintenance walkways, as outlet protection and as protection against leaves and wind-blown debris. Trafficable hail guards should be made of suitable gauge expanded mesh – provide clear working *drawings*. Hail guards should be removable for maintenance.

- ☐ launders: see drawings

Launders are horizontal downpipes draining intermediate box gutter outlets to the exterior of large industrial buildings.

gutter brackets

- ☐ type: purlin / fascia / purpose-designed for industrial/box gutters / as supplied by gutter manufacturer

downpipes

- ☐ material: galvanised steel sheet / PVC

Do not use PVC downpipes if offsets are required.

- ☐ size: see drawings

75 / 100 / 120 / 150 mm square / diameter

Best solution for outlet protection is to use oversize downpipes ≥200 mm diameter.

- ☐ sheet metal downpipe bends: crimped / solder mitred / sealed and pop riveted

18.2 Flat concrete roof, balcony and floor drainage

18.2.1 Rainwater outlet

- ☐ type: see drawings

patent with grating / pipe without grating

- ☐ patent type: see drawings

vertical / 45° / 90° / two-way / car-park / pedestrian

☐ outlet size: see drawings

50 / 80 / 100 / 150 mm diameter

Outlets without gratings should be used for small roof areas in accessible position only, e.g. for balconies, and be not less than 75 mm in diameter due to the waterproof dressing restricting the pipe bore, unless pipe can be flanged.

18.2.2 Floor outlets

☐ material: ductile iron with baked epoxy coating / stainless steel

18.2.3 Outlet downpipes

☐ material: PVC / galvanized steel

☐ size: see drawings

75 / 110 / 160 mm (PVC); 80 / 100 / 125 / 150 mm (steel)

18.3 Stormwater drainage

18.3.1 Earthworks (SANS 2001-DP1)

SANS 2001-DP1 covers earthworks for trenches for all types and sizes of buried pipelines, ducts, cables and prefabricated culverts, including excavation, preparation of trench bottoms, bedding, backfilling and reinstatement of surfaces.

Specification data:

☐ pipes that are to be encased in concrete: see drawings

18.3.2 Storm water drainage (SANS 2001-DP5)

SANS 2001-DP5 covers the construction of stormwater drainage systems including pipelines, manholes, culverts, catchpits, inlet and outlet structures.

Specification data:

pipes

☐ material of pipe, associated fittings: see drawings

concrete / fibre cement / PVC-U / GRP / PP / PE

☐ diameter: see drawings

concrete pipes: 100, 150, 225, 300, 375, 450, 525, 600, 675, 750, 825, 900, 1050, 1200, 1350, 1500, 1800 mm. Check diameters of other material pipes.

culverts

☐ precast concrete culverts

class: 75S / 100S / 125S / 150S / 175S / 200S

dimensions (internal) : see drawings

span: 450, 600, 750, 900, 1200, 1500, 1800, 2400, 3000 mm

height: 300, 450, 600, 900, 1200, 1500, 1800, 2400, 3000 mm

tests

☐ tests: required / not required

18.3.3 In situ concrete stormwater channels

☐ overall width: see drawings

380 / 450 / ... mm

380 mm width: 230 mm x 75 mm deep channel; 450 mm width: 300 mm x 100 mm deep channel.

☐ fall: see drawings

1:250 min.

☐ spill basin shape, size and finish: see drawings.

18.4 Sewerage

18.4.1 Earthworks (SANS 2001-DP1)

Specification data:

☐ pipes that are to be encased in concrete: see drawings

18.4.2 Sewers (>160 mm) (SANS 2001-DP4)

SANS 2001-DP4, Sewers, covers the construction of sewer systems within servitudes, road reserves and interconnected complexes and is suitable for the construction of below ground sewers having a diameter greater than 160mm. Excludes sewer rising mains, pump stations, treatment works, and ancillary works.

Specification data:

- ☐ type of pipe, associated fittings: ductile iron / fibre cement / PVC-U / structured wall PVC-U / PP / GRP / pitch impregnated fibre / vitrified clay / reinforced concrete

Unplasticised polyvinyl chloride (PVC-U); polypropylene (PP); glass-reinforced plastics (GRP)

- ☐ diameter: see drawings

200 / 250 / 315 / 355 / 400 / 450 / 500 / 560 / 630 / 750 / 800 / 900 / 1 000 mm diameter (PVC-U). Check diameters of other material pipes.

- ☐ gradient: see drawings
- ☐ step irons in manholes: required / not required
- ☐ masonry manholes: plastered internally / plastered internally and externally to prevent infiltration
- ☐ tests on completed pipelines: required / not required.

18.4.3 Sewers for buildings (SANS 2001-DP7)

SANS 2001-DP7 covers surface mounted sewers having a nominal diameter of 200 mm or less; and below ground sewers having a nominal diameter of 160 mm or less including manholes and the like which discharge into a connecting sewer, conservancy tank, French drain or septic tank. This standard is *suitable* for constructing sewers designed in accordance with the design rules provided in SANS 10400-P, Drainage. Construction of manholes is referred to SANS 2001-DP4.

Specification data:

- ☐ type of pipe, associated fittings: cast iron / ductile iron / fibre cement / PVC-U / structured wall PVC-U / PP / GRP / pitch impregnated fibre / vitrified clay / reinforced concrete
- ☐ nominal diameter: see drawings

40 / 50 / 75 / 110 / 160 mm

- ☐ gradient: see drawings

SANS 10400-P requires that sewer gradient be not flatter than 1:120 for 100 mm diameter pipes and 1:200 for 150 mm pipes. The hydraulic load determines the minimum grade of the pipe.

18.4.4 Surface boxes, manhole covers, gulley gratings, frames

For vehicular and pedestrian areas only (does not apply to gullies and manholes in buildings).

- ☐ type: see drawings

surface box / valve chamber / manhole/inspection cover / gulley grating

- ☐ material: polymer concrete / cast iron or steel

polymer concrete

- ☐ polymer concrete covers

size: see drawings

duty class: see drawings

heavy (trucks) / medium (domestic vehicles) / light (no wheeled vehicles)

cast iron/steel and concrete

- ☐ cast iron, cast steel, rolled steel combined with concrete covers

size: see drawings

duty class: see drawings

A15 / B125 / C250 / D400 / E600 / F900

Class A15 pedestrian and pedal cyclists; B125 car parks; C250 road kerbside channels; D400 roads, hard shoulders, parking for all types of road vehicles; E600 docks, aircraft pavements; F900 particularly high wheel loads.

- ☐ gulley gratings: laid loose / bedded in bitumen.

18.4.5 Grease interceptors

- ☐ material: stainless steel / reinforced fibreglass

- ☐ type, capacity and size: see drawings / to approval of the local authority

Several models are available on the market.

18.4.6 Pit latrines

- ☐ type: see drawings

VIP / masonry / patent / to approval of local authority

- ☐ construction: masonry / patent precast concrete / patent polymer

- ☐ pit size: see drawings

Pit size depends on capacity/ number of persons using. Omit if default (750 x 1 500 x 2 000 mm minimum deep) is acceptable. Maximum pit size: 1 000 x 2 500 x 2000 mm.

18.4.7 Conservancy tanks, septic tanks and french drains

- ☐ type: see drawings

conservancy tank / septic tank / french drain

- ☐ construction: masonry / patent precast concrete / patent polymer

- ☐ tank capacity: see drawings / as prescribed by local authority

Conservancy tank capacity is typically 6 000 L. See SANS 10400-P for sizing of septic tank. Patent septic tank capacity 1 250 litres (2-4 persons); 1 500 (2-6); 1 750 (4-6); 2 000 (4-7); 2 500 (4-9). Consult SANS 10252 for design guidelines.

- ☐ french drain length: see drawings

See SANS 10400-P for length formula, positioning, soil type, etc.

18.5 Water supply

18.5.1 Earthworks (SANS 2001-DP1)

SANS 2001-DP1 covers earthworks for trenches for all types and sizes of buried pipelines, ducts, cables and prefabricated culverts, including excavation, preparation of trench bottoms, bedding, backfilling and reinstatement of surfaces.

Specification data:

- ☐ pipes that are to be encased in concrete: see drawings.

18.5.2 Below ground medium pressure pipelines (SANS 2001-DP2)

SANS 2001-DP2 covers the supply and installation of pipelines of diameter greater than 160 mm and up to 1 000 mm, complete with ancillary works (valves, strainers, hydrants, manholes, surface boxes, chambers) for transporting water and sewage under working pressures up to 2,5 MPa.

Erf or connections to buildings from mains are covered in SANS 2001-DP6.

Specification data:

- ☐ type of pipe: steel / ductile iron / concrete / fibre-cement / GRP / PE / PP / contractor's choice)

glass-reinforced plastics (GRP); polyethylene (PE); polypropylene (PP)

- ☐ nominal pipe sizes: see drawings.

225 / 300 / 375 / 450 / 525, 600 / 675 / 750 / 825 / 900 mm

18.5.3 Below ground water installation for buildings (SANS 2001-DP6)

SANS 2001-DP6 covers the construction of water pipelines having a nominal diameter of up to 160 mm from a water reticulation main to the boundaries of individual erven or other specified points on erven. It covers the installation of pipework and associated specials which provide water, meters and fire hydrants

SANS 2001-DP6 is suitable for construction of fire installations designed in accordance with the design rules provided in SANS 10400 W, Fire installations.

Specification data:

- ☐ type of pipe and associated fittings: galvanised mild steel / fibre cement / GRP / PE / PP / PVC / PVC-U / PVC-M / PVC-O / copper / contractor's choice

Glass-fibre reinforced plastics (GRP) / polyethylene (PE) / polypropylene (PP) / polyvinyl chloride (PVC) / unplasticised polyvinyl chloride (PVC-U) / modified polyvinyl chloride (PVC-M) / oriented polyvinyl chloride (PVC-O).

☐ nominal pipe size: see drawings

40 / 50 / 75 / 110 / 160 mm

☐ meter type and size: ...

18.5.4 Above ground water installation

☐ pipe material: galvanised mild steel / PP / copper / contractor's choice

☐ nominal pipe size: see drawings

8 / 10 / 12 / 15 / 18 / 22 / 28 / 35 / 42 / 54 / 67 / 76 / 108 mm (copper, check other pipe types)

☐ fixing of pipes <20 mm: chased / surface fixed

Surface mounting may be a requirement from a maintenance point of view.

Chasing is prohibited in wall faces that are to receive roof flashing. Roof flashing is inserted in grooves sawn by a separate trade with disc cutters after pipes are installed, leading to unnecessary and costly pipe repair work when pipes are damaged.

18.5.5 Water storage tanks

☐ tank material: tumbled polymer / pressed steel sections bolted and sealed together / corrugated steel

☐ capacity or size: see drawings / ...L

☐ stand for external tanks: ...

18.6 Electric geysers and solar water heaters

18.6.1 Electric geysers

☐ geyser type: open outlet / cistern type / closed (unvented) / floor or wall mounting / horizontal or vertical

geysers should be placed near kitchen sinks that are regularly used throughout the day. Show geyser positions in drawings.

☐ nominal capacity: see drawings

open outlet and cistern type ≤15 / 25 / 50 / 75 / 100 / 125 / 150 / 175 / 200 / 250 L; closed type 15 / 25 / 50 / 75 / 100 / 125 / 150 / 175 / 200 / 250 / 300 / 400 / 600 L

☐ design: standard / solar / dual purpose.

18.6.2 Solar water heaters

☐ type: domestic / commercial / industrial

☐ capacity in litres (integral units only): ...

☐ collector/storage combination: integral / close-coupled / split

☐ heat transfer method: direct / indirect

☐ circulation method: thermo-siphon / pumped

☐ cover: with cover / without cover

☐ supplementary energy source required: mains electricity / gas / ...

☐ working pressure: 0 / 100 / 200 / 300 / 400 kPa

☐ freezing, hail resistance: required / not required.

18.8 Fire equipment

fire hose reels

☐ height from floor to spindle if not 2 100 mm: ...

☐ enclose reel in security box with clear acrylic cover and suitable closer: required / not required

portable fire extinguishers

☐ portable non-refillable general purpose extinguishers (SANS 1322):

Suitable for all classes of fire other than class D

class: I / II

class I (temp <110°C); II (temp <65°C)

capacity: 1,5 / 2,5 kg

extinguishing medium: lp gas / dry powder

☐ water, foam or dry powder rechargeable extinguishers (SANS 1910):

type: water / foam / dry powder

class of fire: A / B / C

A (ordinary combustibles); B (flammable liquids); C (live electric power), or combinations, e.g. ABC

☐ CO₂ type extinguisher (SANS 1567):

capacity: <9kg

class of fire: A / B / C

☐ BCF type extinguisher (SANS 1151) capacity: 1 – 12 kg

Suitable for class of fire AC / BC / ABC

☐ enclose extinguisher in security box with clear acrylic cover and suitable closer: required / not required.

18.9 Sanitary plumbing

18.9.1 Sanitary appliances appliances

☐ appliance type: see drawings

wash-hand basin / bath / water closet / urinal / bidet / sink / flushing cistern

☐ material: see drawings

glazed ceramic / stainless steel / plastic / stone / concrete

☐ stainless steel grade: 430 / 304 / 316; finish: satin / bright

Omit if default (430) is acceptable. Stainless steel grades are listed by the American Iron and Steel Institute (AISI). Grade 430 is *suitable* for domestic purposes, kitchen sinks, wash troughs and hand wash basins. Grade 304 is *suitable* where mild corrosive conditions exist, e.g. in *coastal areas*. Grade 316 is *suitable* for laboratories, photographic workrooms and seagoing vessels where corrosive conditions are severe.

☐ anti-theft waste plug: required / not required

☐ flow restrictors: required / not required

baths

☐ type, shape: see drawings

built-in / freestanding / spa / rectangular / oval / corner

☐ handles: required / not required

basins

☐ type, shape: see drawings

counter-top / wall hung / drop-in / pedestal / round / oval / corner

wash troughs

☐ type: see drawings

single trough / double trough / with drainboard

water closets

☐ type: see drawings

wall-hung / floor mounted / close-couple / squat

flushing cisterns

☐ type: see drawings

high level / low level / near level / close coupled / wall-hung / concealed

☐ flush capacity: low-flush (4½ or 6 L) / regular flush (6 or 9 L)

- ☐ flush valve flushing operation: single flush / dual flush / interruptible flush

urinals

- ☐ urinal type: see drawings

bowl / trough / stall

bidets

- ☐ bidet type: see drawings

wall-hung / floor mounted

sinks

- ☐ sink type: see drawings

domestic / laboratory / scullery / scrub sink / cleaner's / drop-in / wall-hung / pot / freestanding / with drainboard / with backsplash and tiling key / single, double or triple compartment

- ☐ bowl position: see drawings

left / right / centre

shower enclosures

SASEMA (South African Shower Enclosure Manufacturer's Association). SANS 549 "domestic" includes use in hotels, student accommodation, hospitals.

- ☐ shower enclosure type: purpose made / prefabricated / domestic to SANS 549 / medical / industrial / cabinet / curtain / roofed (steam shower)
- ☐ drained floor type: tiled / tray / bath
- ☐ glazed wall/door/roof construction: framed / frameless

Frameless construction requires toughened safety glass. Holes for hinges etc. must be prepared before toughening.

- ☐ safety glass: toughened safety glass / laminated safety glass / plastic
- ☐ door type: pivoting / folding-sliding
- ☐ metal finish: anodising, grade ... / powder coating, type 4

Metal coating grade/thickness will depend on location: anodising grade AG15 or AG20 will suffice for mild atmospheric conditions, while grade AG25 will be required for coastal applications. For powder coating, type 4 or 5 should suffice. Check with manufacturer.

18.9.2 Taps, valves, showerheads

- ☐ tap, valve type: see drawings

bath / basin / shower / sink / garden / bib / pillar / mixer / divert mixer / swivel / stop / flush / gate / hose / washing machine / draincock / float

- ☐ showerhead type: see drawings

fixed rose, diameter ... / adjustable rose / swivel / rail / vandalproof / handshower and holder

- ☐ material: chromium plated brass / stainless steel / plastic
- ☐ flush valve type: WCHP / WCLP / urinal

WCHP (Water closet high pressure; WCLP (water closet low pressure).

18.9.3 Traps

- ☐ type: see drawings

bottle trap / P-trap / P-trap resealing / pop-up

- ☐ material: plastic / rubber / chromium plated brass
- ☐ depth of seal: 40 / 75 mm.

18.9.4 Miscellaneous

holders

- ☐ holder type: see drawings

paper / soap / tumbler / tooth brush / toilet brush / towel rail/ring/hook

- ☐ material: chromium plated brass / glazed ceramic / aluminium / wood

shelves

- ☐ material: safety glass with polished edges on nickel-chromed / wood / metal / plastic brackets

cabinets

- ☐ type: wall / vanity / with mirror
- ☐ material: wood / plastic / metal.

Relevant standards:

SANS 10105 The classification, use and maintenance of portable fire extinguishers.

SANS 10112 The installation of polyethylene and PVC-U pipes.

SANS 10102 Selection of pipes for buried pipelines.

SANS 10252-1 part 1: Water supply and drainage for buildings; part 2: Drainage installation for buildings.

SANS 10254: The installation of fixed electric storage water heating systems.

SANS 10400-P Drainage.

SANS 10400-Q Non-water-borne means of sanitary disposal.

SANS 10400-R Stormwater disposal.

Relevant sources:

Concrete Pipe Handbook published by the Concrete Society of Southern Africa.

19 Electrical works

19.1 Earthworks (SANS 2001-DP1)

SANS 2001-DP1 covers earthworks for trenches for all types and sizes of buried pipelines, ducts, cables and prefabricated culverts, including excavation, preparation of trench bottoms, bedding, backfilling and reinstatement of surfaces.

Specification data:

- ☐ areas where pipes are to be encased in concrete: see drawings

19.2 Cable ducts (underground) (SANS 2001-DP3)

SANS 2001-DP3 covers the supply, and the laying and bedding in trenches, of pipes of diameter not exceeding 160 mm as ducts for the protection of telephone and electric power cables.

Specification data:

- ☐ type of pipe, associated fittings: pitch impregnated fibre / PVC-U / fibre cement / vitrified clay

Unplasticised polyvinyl chloride (PVC-U).

- ☐ draw pits: see drawings.

19.3 Materials and installation

19.3.1 Wiring conduits

Chasing is prohibited in wall faces that are to receive roof flashing. Roof flashing is inserted in grooves sawn with disc cutters after conduits are installed, leading to unnecessary and costly repair work.

conductors

See SANS 10198 The selection, handling, and installation of electric power cables of rating not exceeding 33 kV.

distribution board, meter cabinets

- ☐ position of DB's and meter cabinets: see drawings.

19.3.2 Fittings luminaires

- ☐ type: see drawings

surface mount / recessed / accent / downlighter / step / theatre / outdoor (pole, step, bollard)

stove, hob, oven, cooker hood

- ☐ stoves, hobs, ovens, cooker hoods model, type: ... / see drawings.

Relevant standards:

SANS 10114 Interior lighting.

SANS 10389 Exterior lighting.

SANS 10142 The wiring of premises.

SANS 10222 Electrical security installations.

SANS 10313: The protection of structures against lightning.

SANS 61024 Lightning protection of structures.

20 Mechanical works

20.1 Installation

- ☐ routing and/or concealment of cables, ducts, trays, pipes etc. : see drawings.

20.3 Location and access

- ☐ catwalks, cat ladders, access panels: see drawings.

Catwalks and cat ladders should be detailed and coordinated with other services in order to keep to a minimum.
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21 External works

21.1 Paving

21.1.1 Materials units

- ☐ paving unit type: see drawings

precast concrete blocks / burnt clay pavers / in-situ concrete / precast concrete slabs

precast concrete segmental paving blocks

- ☐ type: S-A (interlock) / S-B (semi-interlock) / S-C (rectangular)
- ☐ class: 25 / 35

Class 25 (MPa) concrete blocks should be specified for most uses.

- ☐ nominal thickness: 50 / 60 / 80 / 100 / 120 mm

Thickness of blocks depends on site conditions, design requirements and cost.

- ☐ top edges: chamfered / not chamfered
- ☐ colour: ...

burnt clay paving units

- ☐ class: PB / PA

PB (uniform), PA (highly uniform in shape and size).

- ☐ colour and work size: ...

precast concrete paving slabs

- ☐ size: 295 / 445 / 595 x 295 / 445/295 / 595/455 x 50/65 mm

sand for bedding and jointing of flexible paving

The use of mine sand for jointing is generally accepted.

21.1.2 Preparation

subgrade

- ☐ subgrade levels and falls: see drawings

Check soil and traffic conditions with a Competent Person. The sub-base thickness is a function of both the type and amount of traffic to be carried and the strength of the subgrade. See also SANS 1200 ME, MF, ML.

concrete sub-base for rigid paving

- ☐ thickness, reinforcement: see Section 2

weed killer

- ☐ treat area to be paved with *suitable* weed killer: required / not required

levels, falls, pattern

- ☐ levels and falls: see drawings

A fall of 1:60 is regarded as an optimum fall. Gradients of 1:100 are less forgiving (workmanship, settlement).

- ☐ pattern: see drawings / herringbone / basket weave / stretcher / waving

Edge restraints along the perimeter of the paving is necessary to prevent lateral spread of the units and to retain the bedding course sand. See concrete culverts, kerbs etc. below.

21.2.1 Laying

See SANS 784 for guidance on tactile indicators for access and mobility.

- ☐ type of paving: see drawings / flexible block/brick / flexible slab / rigid block/brick / in situ concrete

flexible block/brick paving

Flexible paving is paving laid on sand, with joints filled with sand. The surfaces of flexible paving usually bed down ± 5 mm after trafficking.

Consider mixing filling sand with 10 – 15% cement depending on traffic, type of paver, and control of weed growth. Spray paving thus filled with a fine spray of water immediately after filling to clean off all cement.

- ☐ concrete anchor beams across road on grades exceeding 8%: ...

Horizontal forces of motor traffic increase considerably on grades exceeding 8%, causing creep. This is avoided by casting concrete anchor beams across the road. On steeper grades the paving should preferably be rigid. See CMA technical note 6.2 1994.

flexible slab

- ☐ joints: filled with mortar / to be left open

rigid block/brick paving

Rigid paving is paving units bedded in mortar on a concrete base. External paving is exposed to wide temperature and moisture fluctuation which can only be provided for by movement joints.

accuracy

Accuracy depends on experience of contractor and/or labourers, and importance of the contract.

21.2 Concrete culverts, kerbs, channels

- ☐ type: see drawings

culvert / kerb / channel

21.2.1 Materials

- ☐ precast concrete culvert class: 75S / 100S / 125S / 150S / 175S / 200S

Class depends on foundation conditions and fill.

dimensions (internal) : see drawings

span: 450 / 600 / 750, 90 / 120 / 150 / 180 / 240 / 3 000 mm; height: 300 / 450 / 600 / 900 / 1 200 / 1 500 / 1 800 / 2 400 / 3 000 mm

- ☐ kerb type: see drawings

rectangular / half-battered / battered / mountable

- ☐ edging type: see drawings

rectangular / half-round

- ☐ channel type: see drawings

rectangular / tapered.

21.2.2 Laying

- ☐ movement joints: leave open / fill with polysulphide.

21.3 Concrete retaining blocks

Concrete retaining blocks are an economical, versatile and environmentally compatible method of retaining earth and be used for planting, steps, seats, pavilions, and for erosion and scour control.

blocks

- ☐ shape, size and colour: ...

preparation

- ☐ depth, level and type of foundation: see drawings

Foundations: also on sloping or gravel foundation. *Drawings* should show this. Compacted earth foundation is usually sufficient for structures not higher than 1,2m. Higher walls should be thicker, inclined towards the retained earth, anchored with a geogrid mesh, or by modifying the properties of the backfill. Consult the supplier of the blocks and/or Competent Person. Ensure building regulations are complied with.

- ☐ width of foundation: see drawings

Show width of foundation if of concrete.

- ☐ drain pipes, aggregate drain, geofabric drain behind retaining wall: required / not required

placing

- ☐ stacking pattern: see drawings
- ☐ geofabric reinforcement: required / not required.

SANS 207 gives recommendations for the application of reinforcement techniques to soils and other fills.

21.4 Gabions

materials

- ☐ cage dimension: 4 x 1 x 1 / 6 x 2 x 0,5 m

- ☐ mesh wire to be PVC-coated: required / not required.

21.5 Fencing

- ☐ type: see drawings

line wire on steel posts, stays, droppers and standards / wire chain-link mesh on steel posts, stays, droppers and standards / welded mesh / barbed tape / palisade / electric / private swimming pool

21.5.1 Line wire and chain-link mesh fencing

- ☐ type wire: ...

line / barbed

- ☐ type chain link wire: 1 / 2

1 (zinc coated) / 2 (zinc coated and PVC coated).

- ☐ colour of PVC coating when relevant: dark green / white

- ☐ nominal size mesh of chain-link wire: 40 / 50 / 60 / 75 / 100 mm

posts, stays, standards, droppers

- ☐ type: steel / concrete / wood

erection

- ☐ fence height: see drawings

900 / 1 200 / 1 800 / 2 000 / 2 400 / 3 000 / 3 600 mm

fencing gates

- ☐ size, shape: see drawings.

21.5.2 Weld mesh fencing

- ☐ material: mild steel / high tensile steel / very high tensile steel

High tensile steel (>950 MPa); very high tensile steel (>1 250 MPa).

- ☐ mesh size: 25 x 25 / 50 x 25 / 50 x 50 / 100 x 50 / 100 x 100 mm

- ☐ finish: hot dip galvanized / black / hot dip galvanized and powder-coated

- ☐ fence height: see drawings

1 200 / 1 800 / 2 400 mm

21.5.3 Barbed tape fencing

- ☐ type: A (concertina) / B (flatwrap) / C (barbed tape unclipped) / D barbed razor tape

- ☐ material: zinc-coated steel strip / stainless steel

- ☐ zinc coating grade: light / medium / heavy

21.5.4 Palisade fencing

- ☐ type: steel / concrete

- ☐ finish on steel: paint / hot dip galvanized

steel

- ☐ type: security purpose / general purpose

- ☐ steel fence height: see drawings

1 800 / 2 400 / 3 000 / 3 600 mm

- ☐ concrete fence height: see drawings

1 800 / 2 400 mm.

21.5.5 Electric fencing

- ☐ type: wall top / from ground up / electrified palisade / freestanding

- ☐ number of lines for wall-top type: 6 / ...

- ☐ powered by: mains / battery / solar.

21.5.6 Gate automation

- ☐ theft-resistant cages with padlock: required / not required.

21.5.7 Private swimming pool fencing

- ☐ fence height: see drawings

1,6 m* / 1,2 m

- ☐ type of protective wire coating: powder / zinc / paint / dual (paint over zinc).

• 21.6 Precast concrete plank walling

- ☐ type panel: plain / decorative

- ☐ colour: natural / ...

- ☐ height of wall: see drawings

900 / 1 200 / 1 500 / 1 800 / 2 200 mm

- ☐ width of panel: 300 / 600 mm.

21.7 Swimming pools

- ☐ swimming pool size, shape and finish: see drawings

21.8 Timber decking

SANS 10043 covers general principles on the installation of timber decking.

21.8.1 Materials

poles

- ☐ wood: softwood / hardwood

Softwood: Pinus; hardwood: Eucalyptus.

- ☐ top diameter (thin end): see drawings

50-79 (red) / 80-99 (yellow) / 100-119 (blue) / 120-139 (white) / 140-159 (orange) / 160-179 (green) / 180-199 (black) mm; ditto posts: 145-174 / 175-199 / 200-230 mm.

structural laminated timber

- ☐ wood: softwood / hardwood

Softwood: Pinus; hardwood: Eucalyptus.

- ☐ appearance and finish: P

Rough-sawn (R), fine-sawn (F), planed (P), sanded (S), smoothed (G), coated (C), special (X).

Preservative treatment: The Forestry Act 1968 (Act 72 of 1968) provides for the legal requirement of pressure treatment of structural softwood timber to combat any fungus or bacterial disease, insects or parasites affecting the timber. The present legislation applies to the so-called *the coastal region* only.

- ☐ fire retardant treatment: required / not required

- ☐ size: ...

deck boarding

- ☐ wood: softwood (Pinus) / hardwood

- ☐ softwood:

grade: clear / semi-clear

dimensions: 22 / 33 mm x >50 mm wide

- ☐ hardwood:

specie: ...

grade: clear / figured

dimensions: 20 mm x 35 – 90 mm wide

fixings

- ☐ screws: solid brass / silicon bronze / aluminium / stainless steel

balustrades

- ☐ material: wood / metal / glass / ...

- ☐ construction: ...

Balustrades to conform to SANS 10400-M.

21.8.2 Installation

- ☐ pole to ground contact: see drawings / planted in concrete / on metal brackets on concrete footings
- ☐ plug screw holes with matching wood: required / not required
- ☐ protect end grain with metal caps: required / not required / see drawings.

21.9 Landscaping

21.9.9 Garden furniture

- ☐ garden furniture type: see drawings

table / bench / seat / canopy / litter bin / playground equipment

- ☐ material: see drawings

precast concrete / wood / metal

- ☐ finish: ...

21.9.10 River pebbles

- ☐ size, colour, mix: ...

Relevant standards:

SANS 1200 MJ Segmental paving.

Precast concrete paving blocks – laying manual. The Concrete Masonry Association.

Technical guide: Clay Pavers & Paving – selection and construction guidelines. Corobrik.

SANS 10244 Zinc and zinc-alloy coatings on steel wire.

SANS 10104 Handrailing and balustrading (safety aspects).

SANS 14001 Environmental management systems.

PART C3.3.1

Particular Project Specifications

In the event of any discrepancy between the Project Specifications and a part or parts of the COLTO Standardized Specifications, SANS 1200 Standardized Specifications, the Schedule of Quantities or the Drawings, the Project Specifications shall take precedence. Where discrepancies arise with regard to the units of the payment items only, the units stated in the Schedule of Quantities shall prevail.

PS 1	CONSTRUCTION PROGRAMME
PS 2	SITE FACILITIES AVAILABLE
PS 3	SITE FACILITIES REQUIRED
PS 4	FEATURES REQUIRING SPECIAL ATTENTION
PS 5	INFORMATION SUPPLIED BY EMPLOYER
PS 6	EXTENSION OF TIME ARISING FROM ABNORMAL RAINFALL
PS 7	CERTIFICATES OF PAYMENT
PS 8	CONSTRUCTION IN LIMITED AREAS
PS 9	NON-WORKING DAYS
PS 10	SPOIL MATERIAL
PS 11	DRAWINGS
PS 12	LENGTH OF TRENCHES
PS 13	SAMPLES
PS 14	MANUFACTURER'S INSTRUCTIONS
PS 15	MATERIALS AND PLANT
PS 16	NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS
PS 17	SETTING OUT OF WORK
PS 18	WORKMANSHIP AND QUALITY CONTROL
PS 19	TRANSPORT OF MATERIAL
PS 20	LIAISON WITH LOCAL AUTHORITIES
PS 21	LOCAL LABOUR AND LOCAL SUBCONTRACTORS
PS 22	TRAINING SCHEMES
PS 23	PRESCRIPTIONS IN RESPECT OF EXISTING SERVICES

PS 1: CONSTRUCTION PROGRAMME

It is a prerequisite of this contract that minimal disruption of the public is ensured during construction. Construction methods must be of such a nature that no property or life is endangered. The Municipality accepts no responsibility for any work done outside the site boundaries without the Engineer's approval. The Contractor himself is responsible for liaison and arrangements with the Engineer in connection with the finalization and approval of the construction programme.

The Contractor is responsible for liaison with residents and house owners via the Project Steering Committee in respect of the programming of construction through private erven and the crossing of driveways to erven. No additional payment will be made in this regard and it shall be deemed to be covered by the relevant items.

Sufficient digital photographs of all existing structures and obstructions in the pipe line routes must be taken by the Contractor, compiled electronically, indexed and handed over to the Engineer before construction commences.

The Contractor shall submit a programme of work to the Engineer/Municipality not later than 14 (fourteen) days after the Contractor has been notified of the acceptance of his tender. This programme must take into account, and allow for phased completion of the work. The Engineer may instruct the Contractor to stop construction work at any stage and time, as may be dictated by financial constraints highlighted by the Clients Cost Control Programme.

If necessary, the Engineer may instruct the Contractor to adjust his programme to suit other activities.

The programme shall not be in the form of a bar chart only, but shall clearly show the anticipated quantities, the production rates and value of work to be performed each month.

A network-based programme according to the precedence method shall also be provided showing the various activities and critical path 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.

Failure to comply with these requirements will entitle the Engineer to use a programme based on his own assumptions for the purpose of evaluating claims for extension of time or additional payments.

If the programme submitted by the Contractor in terms of Clause 15 of the General Conditions of Contract, has to be revised because the Contractor is falling behind in his programme, he shall submit a revised programme of how he intends to regain lost time to ensure completion of the Works within the period defined in Clause 45 of the General Conditions of Contract or within a granted extension of time. A proposal to increase the tempo of work must incorporate positive steps to increase production either by more labour and plant on the site, or by 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 set out in Clause 58 of the General Conditions of Contract.

The approval by the Engineer of a programme shall have no contractual significance other than the Engineer will be satisfied if the work is carried out according to the programme. The said approval shall not limit the right of the Engineer to instruct the Contractor to vary the programme if necessary. The Contractor shall allow for the effect of normal rainfall and special non-working days in his programme.

(CRITICAL PATH MUST BE INDICATED ON PROGRAMME)

PS 2: SITE FACILITIES AVAILABLE

PS 2.1: Camp site

The Contractor shall negotiate with property owners and make his own arrangements to obtain sites for the erection of offices, laboratories, yards, etc. Written approval must be obtained from the owners on whose property the camp is to be situated. The choice of all sites for the establishment of camps is subject to the approval of the Engineer. Campsites within the road reserve will not be permitted.

PS 2.2: Water, electricity and sewage

The Contractor shall make his own arrangements concerning the supply of electrical power, water, telephone and all other services, both for use at the site establishment area as well as for the use in the construction of the Works. No direct payment shall be made for the provision of any service and the cost thereof shall be deemed to be included in the rates tendered for the various items of work for which these services are required.

PS 2.3: Rain gauge

The contractor must set up his own rainfall gauge. This item is included in the Schedule of Quantities under other fixed-charge obligations.

PS 3: SITE FACILITIES REQUIRED

PS 3.1: Facilities for the Engineer

No separate office is required for the Engineer's representative but the Contractor must provide a table, a chair and a plan cupboard in one of his offices for the exclusive use of the Engineer's representative. The Engineer's representative shall be allowed free use of the Contractor's facilities. The Engineer's representative shall be allowed free use of survey equipment and survey assistants to carry out control work as and when required.

PS 3.2: Equipment for Engineering staff

The Contractor shall allow for providing the following protective clothing for the engineering staff:

- 2 high visibility vests
- 2 hard hats (white)
- 2 Sets of safety boots

The contractor shall supply the Engineer with a Business cell phone and be responsible for the monthly running cost, and other cost relating to the use of the cell phone.

Office facilities shall be provided by the Contractor as described by Colto Specification.

PS 3.3: Water, electricity and sewage

The Contractor shall, at his own expense, be responsible for obtaining and distributing the water and electricity required for construction and domestic use. The distribution of water and electricity shall be carried out in accordance with the applicable laws and regulations.

No separate payment will be made for obtaining and distributing water and electricity, the cost of which will be deemed to be included in the tendered rates.

PS 3.4: Site instruction book

A triplicate book shall be provided by the Contractor to be used for site instructions. It shall at all times be kept on the site.

PS 4: FEATURES REQUIRING SPECIAL ATTENTION

PS 4.1: Access to properties

The Contractor shall organize the work in such a manner as to cause the least possible inconvenience to the public and to the property owners adjacent to or affected by the work included in this contract.

If, as a result of restricted road reserve widths and the nature of the works, the construction of bypasses is not feasible, construction shall be carried out under traffic conditions in order to provide access to the erven and properties.

The Contractor may, with the approval of the Engineer, make arrangements with the occupiers of the affected erven and properties to close off a portion of a street, road, footpath or entrance temporarily, provided the Contractor duly notifies the occupiers of the intended closure and its probable duration and shall, as punctually as possible, re-open the route at the prescribed time. Where possible, the road shall be made safe and re-opened to traffic overnight. Any such closure shall be made by arrangement between the Contractor and the occupiers and shall not absolve the Contractor from his obligations under the contract to provide access at all times. Barricades, traffic signs and drums shall be provided by the Contractor to suit the specific conditions. The Contractor shall also comply with all the requirements of the Local Authority with regard to safety, signage and notices to the public.

PS 4.2: Existing residential areas

Access to the adjacent residential areas shall be maintained at all times, as shall access to individual houses.

Electricity and water supply interruptions to existing residential areas shall be kept to a minimum. Whenever it is necessary to interrupt these supplies, the Engineer's approval shall first be obtained. The affected residents shall then be notified in writing at least 3 days, but not more than 5 days in advance. Supplies shall be normalized by 16:00 on the same day.

Cognisance shall be taken by the Contractor of the possibility of residents from the adjacent residential areas having access, whether authorized or not, to the works. It is strongly emphasized that under no circumstances shall any claims be considered for delays or disruptions as a result of the presence of residents from the adjacent occupied areas.

PS 4.3: Facilities to other Contractors

In addition to the requirements of clause 21 of the general conditions of contract, the Contractor must make allowance for the presence of other Contractors engaged on other contracts on the site, which may involve, inter alia, the adoption of his programme to fit in with work to be done by the other Contractors, as well as assuring other Contractors access to

their sites along prescribed routes which may fall within the site of this contract.

PS 4.4: Contractor's vehicles

All equipment and vehicles used by the Contractor shall be roadworthy at all times and all drivers and operators shall be in possession of valid drivers' licences.

PS 4.5: Site maintenance

During the progress of the work and upon its completion, the site of the works shall be kept and left in a clean and orderly condition. The Contractor shall at all times store materials and equipment for which he is responsible in an orderly manner, and shall keep the site free from debris and obstruction. Workers shall lunch or have tea breaks only in a designated area with approved refuse and toilet facilities.

No open fires shall be permitted on the site.

Vehicles and workers must adhere to property demarcated access routes and not take or make short cuts.

PS 4.6: Testing and quality control

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 independent 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.

Certificates shall be submitted to the Engineer for all materials and equipment included in the works, where applicable.

PS 4.7: Subcontractors

The Contractor is responsible for work carried out on his behalf by subcontractors. The Engineer will not liaise directly with such subcontractors, and all problems relating to payments, programming, workmanship, etc, shall be the concern of the Contractor and the subcontractor, and the Engineer will not be involved.

PS 4.8: Existing Services

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:

- (a) These services actually are in the approximate positions indicated.
- (b) That these are the only services in the vicinity, and
- (c) That the nature and description of these services are correct.

The Contractor shall be responsible to locate and safeguard any existing service or works 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.

Any alteration to public services shall be carried out by the Authority concerned unless the Contractor is instructed otherwise.

The Contractor shall provide the necessary assistance during any operations necessary in connection with the removal, alteration or safe-guarding of any public service.

1. PS 4.9 Safety

The Contractor shall apply suitable proven methods for construction so that his activities will not constitute a hazard to the public or any adjacent property. All excavations shall be suitably safeguarded and barricaded especially during night time, weekends or holidays and any other day of inactivity by the Contractor.

PS 5: INFORMATION SUPPLIED BY EMPLOYER

Certain information contained in these contract documents, or provided separately, is being offered in good faith. However, in the circumstances pertaining to the type of information supplied, no guarantee can be given that all the information is necessarily correct or representative. More specifically this applies to all material surveys and reports and similar information, the accuracy of which is necessarily subject to the limitation of testing, sampling, the natural variation of material or formations being investigated and the measure of confidence with which conclusions can be drawn from any investigations carried out. It also applies to the positions of existing services as indicated on the drawings.

The Employer accepts no liability for the correctness or otherwise of the information supplied or for any resulting damages, whether direct or consequential, should it prove during the course of the contract that the information supplied is either incorrect or not representative. Any reliance placed by the tenderer on this information shall be at his own risk.

PS 6: EXTENSION OF TIME ARISING FROM ABNORMAL RAINFALL

If abnormal rainfall or wet conditions occur during the course of the Contract, the Employer may grant an extension of time in accordance with Clause 45 of the General Conditions of Contract, calculated in accordance with the formula given below for each calendar month or part thereof:

$$V = (Nw - Nn) + (Rw - Rn)/X$$

If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.

The symbols shall have the following meanings:

V = Extension of time in calendar days for the calendar month under consideration.
When the value of V for any month exceeds the number of days in the particular month, V will be the number of days in the month.

Nw = Actual number of days in the calendar month on which a rainfall of Y mm or more were recorded.

Nn = Average number of days, derived from existing rainfall records, on which a rainfall of Y mm or more were recorded for the calendar month.

R_w = Actual rainfall in mm recorded on the Site in an approved rain gauge for the calendar month under consideration.

R_n = Average rainfall in mm for the calendar month, derived from existing rainfall records.

The total extension of time is the algebraic sum of all the monthly totals for the period under consideration, but if the total is negative, the time for completion will not be reduced on account of subnormal rainfall. Extensions of time for part of a month will be calculated by using pro rata values for N_n and R_n .

The factor $(N_w - N_n)$ is considered a fair allowance for variations from the average number of days during which the rainfall exceeds Y mm.

The factor $(R_w - R_n)/X$ is considered a fair allowance for variations from the average number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work.

The average rainfall record for the past 10 years at the nearest rainfall station shall be for the purposes of this Contract are taken as normal rainfall. R_n and N_n for this period shall be used and the values of X and Y are 20 and 10 respectively.

PS 7: CERTIFICATES OF PAYMENT

It was agreed that the master copy of the payment certificates would be drawn up and processed by the Contractor. All costs to this effect, as well as reproduction costs shall be to the account of the Contractor. It was agreed that the first month's certificate will be evaluated and if in order, the same format will be used throughout the contract.

PS 8: 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.

PS 9: NON-WORKING DAYS

The Contractor shall not work on Sundays or on the following statutory Public Holidays: New Years Day, Human Rights Day, Good Friday, Family Day, Freedom Day, Workers Day, Youth Day, National Women's Day, Heritage Day, Day of Reconciliation, Christmas Day and Day of Goodwill. Whenever any of the above statutory Public Holidays fall on a Sunday, the following Monday shall be a Public Holiday.

PS 10: SPOIL MATERIAL

No indiscriminate spoiling of material will be allowed. All surplus or unsuitable material shall be spoiled in designated areas as directed by the Engineer. Spoiling shall comply with the applicable statutory and municipal regulations.

PS 11: DRAWINGS

All "as built" information, as listed below, must be submitted to the Engineer's Representative

before a certificate of completion will be issued. No separate payment will be made for the "as built" drawings

List of "as built" information required

- (a) Exact coordinates or chainage on the road centre line of each duct road crossing for electrical and irrigation services.
- (b) Exact coordinates and invert levels of all stormwater manholes, culverts and kerb inlets.
- (c) Exact coordinates and invert levels of all construction work

A Registered Land Surveyor shall be required to provide the above information.

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.

PS 12: LENGTH OF TRENCHES

Where no limitations are imposed by construction stages and unless otherwise permitted in writing by the Engineer, not more than 200 m 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.

PS 13: SAMPLES

The Contractor shall at his own cost, supply all samples that may be required. Material or work not conforming to the approved samples shall be rejected. The Engineer reserves to himself the right to submit samples to any tests to ensure that the material represented by the sample conforms to the requirements of the specifications. The cost of all tests failed shall be for the Contractor's account.

PS 14: 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.

PS 15: MATERIALS AND PLANT

The contractor, when using materials that are required to comply with any standard specification, shall, if so ordered, furnish the engineer with certificates of compliance.

Where so specified, materials shall bear the official mark of the appropriate authority. Samples ordered or specified shall be delivered to the engineer's office on the site free of charge.

Where proprietary products have been specified, similar products may be used subject to the prior written approval of the engineer.

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's current published instructions.

Unless anything to the contrary is specified, all manufactured articles or materials supplied by the contractor for the permanent works shall be unused.

Existing structures on the site shall remain the property of the employer and except as and to the extent required elsewhere in the contract, shall not be interfered with by the contractor in any way.

Materials to be included in the works shall not be damaged in any way and, should they be damaged on delivery or by the contractor during handling, transportation, storage, installation or testing they shall be replaced by the contractor at his own expense.

All places where materials are being manufactured or obtained for use in the works, and all the processes in their entirety connected therewith shall be open to inspection by the engineer (or other persons authorised by the engineer) at all reasonable times, and the engineer shall be at liberty to suspend any portion of work which is not being executed in conformity with these specifications.

The contractor shall satisfy himself that any quarry selected for use provides the necessary mined material in accordance with the specification.

PS 16: 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.

Notices, signs and barricades as well as advertisements may be used only upon approval by the Engineer, 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 items 1300 (Colto) of the Schedule of Quantities.

PS 17: SETTING OUT OF WORK

Reference and level beacons will be shown to the Contractor by the Engineer at the commencement of the Contract and the Contractor will be responsible for transferring the data 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 new values have been certified by the Engineer. 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. Accurate control of line and level shall be provided by the Contractor at all stages of construction.

Work set out by the Contractor may be checked by the Engineer and any errors found shall be rectified by the Contractor at his own expense. 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 two labourers 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.

PS 18: 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.

PS 19: 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 project specifications.

PS 20: 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 commences. 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 involve a local authority.

PS 21 LOCAL LABOUR AND LOCAL SUBCONTRACTORS

PS 21.1 Introduction

It is envisaged that the works will be constructed by one Contractor employing local labour to construct the work applying the principles of the Expanded Public Works Programme (EPWP).

PS 21.2 Workload

The Contractor is required to execute certain components of this contract with labour-based construction methods as described in relevant sections.

PS 21.3 Assisting ABE's

The Contractor is required to assist ABE's in accordance with the Contractors proposal included in his/her tender.

PS 21.4 Local Labour

It is the intention that this Contract should make maximum use of the local labour force that is presently under-employed. To this end the Contractor is expected to limit non-local employees to key personnel only and to employ and train local labour on this Contract.

The Contractor shall complete the form: Annexure F and state how many non-local key personnel he intends to employ in the various categories. The numbers stated on the above-mentioned form will be strictly controlled during the Contract period and any increase in numbers is subject to the approval of the Employer.

A Project Steering Committee (PSC) has been formed and consists of representatives of the affected community, Ephraim Mogale Local Municipality and the Engineer. The PSC is up to date with the details of the project and appointment of all local labour must be through the PSC.

The Contractor will be required to arrange his own documentation regarding a contract for locally employed labour and must include provisions for the Occupational Health and Safety Act (1993) and the Compensation for Occupational Injuries and Diseases Act. The minimum daily wage to be paid in accordance with the Wage Bill for the geographical area shall be as stated in the Government Gazette in terms of Wage Determination for the Civil Engineering Industry.

PS 21.5 Contractors Obligations

The Contractor is to supply the Engineer with copies of the agreements between himself/herself and his/her subcontractors within twenty-one (21) days of the contract being awarded.

Should the Contractor be unable to or unwilling to:

- i) Subcontract the required Works as detailed in his/her tender document;
- ii) Submit the necessary documentation to prove that he/she is subcontracting the work as specified in paragraph PS 10.6.
- iii) Implement his/her proposed training scheme or any other scheme agreed to by the relevant parties;

The Municipality reserves the right to:

- a) Nullify the said contract and re-issue it to tender;
- b) Nominate available local subcontractors for the required Works;
- c) Deduct payment from the monthly certificates, the value of which will be calculated as follows:

$$X = Y - Z$$

X = Amount of deduction from the monthly certificate

Y = Value of the work that should have been undertaken by the subcontractor during the month

Z = Value of the work actually undertaken by the Subcontractor during the month;

(d) = Nominate agents to undertake the proposed training at the expense of the Contractor.

PS 21.6 Work considered to be Labour Based

It is a condition of this contract that the following components of work must be executed using labour based construction methods.

- 1) Excavation of soft/ intermediate / hard material in pipe trenches not deeper than 1,2 m if the uninterrupted trench length of soft material is greater than 50 m, and the total depth of the trench consists of soft material.
- 2) Excavation of soft/ intermediate/ hard material in all pipe trenches for erf connections with no limitations.
- 3) Preparation of pipe bedding.
- 4) Laying and jointing of all pipes with a nominal diameter smaller than 230mm:
- 5) Backfilling of all trenches with compaction excluded.
- 6) Placing of concrete for anchor blocks and toilet foundations.
- 7) Brickwork in toilet structures.
- 8) Basic plumbing installation in toilets.
- 9) All earthworks required for foundations of toilet structures.
- 10) Precast concrete roof slabs for toilets, excluding erection.
- 11) Location of existing services.

Note:

The abovementioned work must either be done by local labourers employed by the Contractor or by local subcontractors. In the Schedule of Quantities, as an alternative to machine excavation, the cost of a compulsory labour based construction activity is covered by using the standard Colto payment item (where applicable). Site conditions and material present will dictate the application of labour-based trench excavation or machine excavation. A prerequisite for payment of these labour-based excavation items is that the Contractor keeps daily written records with names of labourers, tasks completed, man-hours spent and payments made.

Items excluded from labour based items:

- 1) Excavation in Boulders and rock material - Mechanical excavators and blasting allowed.

- 2) Compaction of bedding and backfilling - Rollers and plate compactors allowed.
- 3) Transport of materials LDV, dumpers and other transport equipment allowed.
- 4) Mixing of concrete - Mechanical mixers allowed.
- 5) Vibration of concrete - Vibrators compulsory.
- 6) Precast concrete manholes.

PS 22 TRAINING SCHEMES

Certain members of the Contractors staff will be selected from the locally recruited employees, to be subjected to training in tasks related to the execution of the contract.

The PSC will select the trainees and decide upon the specific training for each of them. The Contractor must guide PSC in this regard and make all the necessary arrangements with the training institution and the trainees, to ensure that the process runs smoothly. All other costs, including transport of trainees, will be borne by the Contractor and is deemed to be included in the P &G.

PS 23 PRESCRIPTIONS IN RESPECT OF EXISTING SERVICES

The scope of works for this contract could be affected by existing services. Where necessary the contractor must familiarize himself with the position and extent of existing services and to carry out the works in such a manner as not to cause damage to existing services.

PS 23.1 Water and Storm Water Services

All manhole covers in the road must be clearly referenced and absolutely no surfacing shall be allowed on any manhole cover.

Any cost of repairs, replacement and/or installation of services and equipment resulting from the contractor's negligence or unauthorized action shall be to the contractor's account.

PS 23.2 Electrical Services

The following procedures will apply:

1. The Contractor will in all instances submit construction drawings to the Electricity Supply Authority (ESA) for comments and for ESA to indicate known electrical services. These drawings will in all instances be available on site during the construction period or in the possession of the supervisor of the construction workers.
2. The cable's precise position on the terrain, with reference to the approximate position as indicated on the drawing, must be confirmed on terrain by means of cable tracing equipment to be supplied or arranged by the Contractor for this purpose. In the case of primary cables (11 kV and 33kV) as indicated on the drawings, it is essential that cable tracing be conducted by ESA. The Contractor will provide sufficient white lime to mark the cable on the ground. The contact persons and telephone numbers for cable tracing personnel shall be obtained from ESA by the Contractor.
3. The Contractor must thereafter, very carefully, open up the cable by hand on at least two places, of which the in between distances will not exceed 50 meters.
4. At any position, between any two points of the exposed cable as described in 1.3 above, that cable shall be identified as a known service if it lays within 0,5 meters of a straight line drawn between these two points
5. If the cable lays further than 0,5 meters away from a straight line drawn between the

two exposed points, it shall be identified as an unknown service.

6. With reference to the approximate position of cables on the drawing, the Contractor will be responsible for confirming the location of such cables on terrain by means of the equipment referred to in 1.2 above, and by careful digging by hand. If the exact position of the cables cannot be determined without doubt, ESA can be approached for help.
7. When existing electrical cables fall within the excavation area of the new service, the Contractor will be responsible for protecting and supporting such cable. During backfilling of the trench, the Contractor will ensure that the cable is not damaged and repositioned at the original position and depth with the necessary bedding and marker tape.
8. Before any exposed cables are backfilled, such cables shall be inspected for possible damage by the terrain agent, in the presence of the Engineer or his/her representative. A complete record of all positions where cables were exposed must be indicated on the drawing.
9. The Contractor is responsible for keeping a complete record of incidents where electrical cables (known or unknown) were damaged that includes the following:
 - Date when damaged and the reason
 - Date when repaired
 - The extent of repairs, for instance cable size, number of joints necessary, the length of cable replaced etc
 - The exact cable position and depth indicated on the plan
10. The Engineer's representative must check these records. The above-mentioned record will be an annexure to the minutes of the monthly site meetings. All repairs of damaged cables (known or unknown) will be conducted by ESA. The account for repairs done on known services (cables) will be delivered to the Contractor via the Engineer. On the basis of accounts delivered monthly by ESA, the repair cost of a known service (electrical cable) that was damaged, will be recovered from the Contractor's certificate.
11. **33 kV Cables**
In no instances will any Contractor be allowed to expose cover 33kV cables or excavate closer to 500mm (by hand) and 2000 mm (mechanical excavation) from the centre of a 33 kV cable. ESA will do the required excavation for the Contractor's account.
12. **Overhead Services**
Excavation and backfill shall be such that no foundation of overhead structures (power lines, streetlights, high mast lights, stays etc.,) will be disturbed. If disturbed, the Contractor will inform ESA in writing and will reinstate the foundation to its original state.
13. **Maintenance Period**
During the maintenance period the Contractor's responsibility shall include:
All electrical cables that were exposed or handled by him
Excavations in the vicinity of poles and stays, at the time of the construction activities

This makes provision for instances where damaged cables were covered up without informing ESA that may cause many problems later on. The Contractor is responsible to repair all disturbed pole and stay foundations and to reinstate it to its original condition (electrical and structural), as they are disturbed.

SECTION EMP: ENVIRONMENTAL MANAGEMENT SPECIFICATION**EMP.1 General**

In order to ensure that the construction works is carried out in an environmentally sensitive matter, strict compliance to the Environmental Management Plan (EMP) guidelines is required. The EMP is bounded to this document under Part C4: **Site Information**. The purpose of the EMP is to:

- Encourage good management practices through planning and commitment to environmental issues,
- Provide rational and practical environmental guidelines to:
 - i. Minimize disturbance of the natural environment,
 - ii. Prevent pollution of land, air and water,
 - iii. Prevent soil erosion and facilitate re-vegetation.
- Adopt the best practicable means available to prevent or minimize adverse environmental impact,
- Develop waste management practices based on prevention, minimization, recycling, treatment or disposal of wastes,
- Train employees and contractors with regard to environmental obligations.

EMP.2 Training and Induction of Employees

- The Contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes sub-contractors, casual labour, etc.). The EMP shall be part of the terms of reference for all contractors, sub-contractors and suppliers.

EMP.3 Complaints Register and Environmental Incident Book

Any complaints received by the project team from the public will be recorded. The complaint should be brought to the attention of the site manager, who will respond.

The following information must be recorded:

- Time, date and nature of the complaint,
- Type of communication (telephone, letter etc),
- Name, contact address and telephone number of the complainant,
- Response and investigation undertaken and
- Actions taken and by whom.

All complaints received will be investigated and a response given to the complainant within 14 days.

All environmental incidents occurring on the site will be recorded. The following information will be provided:

- Time, date, location and nature of the incident,
- Actions taken and by whom.

EMP.4 Site Cleanliness and Neatness

- Location of a construction camp is to be approved by the Engineer and is to be restored to its previous condition after completion of construction.
- The construction camp should preferably be fenced with a 1.8m bonnox fence or similar approved.
- All materials, equipment, plant and vehicles must be stored within the construction camp.
- A dedicated area must be made available for construction staff to change and store their personal belongings.

EMP.5 Access

- Access to existing roads, schools, buildings, shops and residential properties must not be impeded during construction.
 - Access roads utilised by the Contractor must be maintained in good condition.
- EMP.6 Borrow Pits**
- Mining authorizations (permits) for borrow pits must be obtained from the Department of Minerals and Energy (DME) in consultation with the Department of Water Affairs and Forestry (DWAF).
 - Spoil dumps resulting from borrow pits must not interfere with any natural surface drainage.
 - Borrow pits must be rehabilitated after use in accordance with the requirements of DME and DWAF.
 - Borrow pits will be fenced and the necessary warning signs will be erected.
- EMP.7 Dust Control / Air Quality**
- Dust suppression measures must be implemented during construction by ensuring that all surfaces prone to dust generation are kept damp (e.g. use of water tanker).
 - Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive.
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 - Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive.
 - Special care must be taken in areas where the route passes close to schools and residential areas.
 - The speed of construction vehicles must be reduced.
- EMP.8 Fauna**
- Contractor staff may not chase, catch or kill animals encountered during construction.
- EMP.9 Fire Prevention and Control**
- Smoking is prohibited in the vicinity of flammable substances.
 - The contractor must ensure that fire-fighting equipment is available on site, particularly where flammable substances are being stored or used, and that construction staff are aware of where it is kept and how it is operated.
 - Fires started for comfort (warmth) are prohibited, due to the risk of veld fires and risk to adjacent property owner's lands.
- EMP.10 Grave Sites**
- Gravesites in close proximity to the road must not be disturbed during construction.
- EMP.11 Materials Handling and Spills Management**
- Any hazardous materials to be used during construction (e.g. lime, fuel, paint, etc) are to be stored in a designated area at the campsite.
 - The storage containers/facilities (including any diesel/petrol tanks) must be placed on an impermeable surface and surrounded by a bund wall, in order to ensure that accidental spillage does not pollute the environment.
 - Workers must at all times be made aware of the health and safety risks associated with any hazardous substances used (e.g. smoking near fuel tanks), and must be provided with appropriate protective clothing/equipment in case of spillages or accidents.
 - Ensure all staff and contractors undergo relevant training in the maintenance of equipment to prevent the accidental discharge or spill of fuel, oil, lubricants and other chemicals.
 - Any spill of potentially hazardous materials must be cleaned up immediately (Potentially hazardous materials on site include paint, oil, grease, fuel, turpentine, etc).
 - The area of contaminated soil or spill must be deposited into the hazardous waste container(s).
 - The contractor should keep Peat, Sorb or a similar absorbent on site to clean up any spills. The absorbent must be stored in a designated area and be available for inspection.

- All spills are to be recorded in the environmental incident book.

EMP.12 Noise

- Noise generating activities must be restricted to between 07:00 and 17:00 Monday to Friday, unless otherwise approved by the appropriate competent person in consultation with adjacent landowners/affected persons.
- All equipment, vehicles and machinery must be in good working condition and be equipped with sound mufflers if necessary.
- Construction staff must be trained and made aware of not creating unnecessary noise such as hooting and shouting.

EMP.13 Pollution Control

- Soil and water pollution through usage of fuel, oil, paint, bitumen or other hazardous substances must be avoided.
- All construction vehicles are to be maintained in good working order so as to prevent soil or water pollution from oil, fuel or other leaks, and to reduce noise pollution.

EMP.14 Rivers and Streams

- During construction of bridge structures, there must be no obstruction of the water flow of rivers and streams.
- Excavated material must not be stockpiled on or near riverbanks, in order to prevent sedimentation occurring.
- Erosion control measures must be employed both during and after construction.
- No impediments to natural surface water flow, other than approved erosion control measures, must occur.

EMP.15 Safety

- Safety measures, such as detour signs, must be implemented during construction to ensure the safety of workers, pedestrians and drivers/passengers in vehicles in the vicinity of construction work.
- Special care must be taken in the vicinity of schools to ensure the safety of children wishing to cross the road under construction.
- The relevant signage (e.g. speed control signs) must be erected alongside the road during the operation phase in order to control traffic.
- Accommodation must be made for pedestrian pathways alongside the road during the construction and operation phases.

EMP.16 Soil Management

- Stormwater drainage pipes must be installed alongside the road in all areas susceptible to soil erosion.
- Erosion should be minimized by the construction of meadow drains and the planting of indigenous vegetation on the side slopes and drains to reduce flow velocity of stormwater.
- Spoil from cuts may be used in existing erosion galleys.
- Stone pitching and gabions should be constructed at pipe culvert outlets.
- Accidental spills of contaminants onto the ground e.g. oil, concrete, fuel and chemicals should be removed together with the contaminated soil.
- If necessary an absorbent such as Peat Sorb should be used the aid in cleaning up the spill. The contaminated soil should be disposed of in an appropriate container, depending on its classification.
- Servicing and re-fuelling of vehicles must only be carried out at construction camp.

EMP.17 Worker Conduct

Code of Conduct for Construction Personnel:

- Do not leave the construction site untidy and strewn with rubbish which will attract animal pests.
- Do not set fires.

- Do not cause any unnecessary, disturbing noise at the construction camp/site or at any designated worker collection/drop off points.
- Do not drive a construction-related vehicle under the influence of alcohol.
- Do not exceed the national speed limits on public roads or exceed the recommended speed limits on the site.
- Do not drive a vehicle which is generating excessive noise or gaseous pollution (noisy vehicles must be reported and repaired as soon as possible).
- Do not litter along the roadsides, including both the public and private roads.
- Do not pollute any water bodies (whether flowing or not).
- No member of the construction team is allowed to enter the areas outside the construction site.

EMP.18 Traffic Disturbances and Diversions

- Any traffic diversions must be undertaken with the approval of all relevant authorities and in accordance with all relevant legislation.
- Wherever possible, traffic diversion must only take place on existing disturbed areas and remain within the existing road reserve.
- Traffic diversion routes must be rehabilitated after use.

EMP.19 Vegetation

- Only vegetation falling directly on the route must be removed where necessary.
- Alien vegetation within the road reserve must be eradicated, and management measures must be implemented for future control of these species.
- Vegetation that has been removed from large areas (e.g. on traffic diversion routes) during construction must be replaced with indigenous vegetation after construction has been completed.

EMP.20 Waste Management

- All general, non-hazardous waste must be placed in a skip container and disposed of at a registered waste disposal site.
- The contractor is to ensure that the portable toilet facilities at the campsite are properly maintained and in working order.
- No disposal, or leakage, of sewage must occur on or near the site.
- All hazardous waste (e.g. oil, paint, empty lime bags, contaminated wash water, etc) must be stored in leak proof containers and disposed of at a registered hazardous waste disposal site.
- The contents of waste storage containers must, under no circumstances, be emptied to the surrounding area. In general, littering, discarding or burying of any materials is not allowed on site or along the route.
- Adequate waste receptacles must be available at strategic points around the construction camp and site for all domestic refuse and to minimize the occurrence of littering.
- Concrete rubble must be collected and disposed of as directed by the Project Manager.
- Each working area must be cleared of litter and building waste (e.g. rubble, wood, concrete packets etc) on completion of the day's work.
- Any spill around the container(s) should be treated as per Section EMP11 and EMP16.

SECTION OHS : OHSA 1993 HEALTH AND SAFETY SPECIFICATION

OHS.1 SCOPE

This specification covers the health and safety requirements to be met by the Contractor to ensure a continued safe and healthy environment for all workers, employees and subcontractors under his control and for all other persons entering the site of works.

This specification shall be read with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993, and the corresponding Construction Regulations 2014, and all other safety codes and specifications referred to in the said Construction Regulations.

In terms of the OHSA Agreement in Section C1.2.4 of the Contract document, the status of the Contractor as mandatory to the Employer (client) is that of an employer in his own right, responsible to comply with all provisions of OHSA 1993 and the Construction Regulations 2014.

This safety specification and the Contractor's own Safety Plan as well as the Construction Regulations 2014, shall be displayed on site or made available for inspection by all workers, employees, inspectors and any other persons entering the site of works.

The following are possible risks associated with this project:

- Working high above the ground on top and below the bridge, most of the time in a restricted environment with limited landings (working platforms)
- Working above a continuously flowing river and in an flood plain environment subject to flooding
- Lifting and lowering of materials and equipment from the ground to the bridge and vice versa, exposed to cross winds
- Steep and restricted access to the lower flood plain below the bridge
- Potentially dangerous existing services, i.e. gas lines, water and sewerage mains, electrical high voltage cables, on the bridge, buried and overhead
- Deep excavations in soils requiring shoring or reducing of slopes
- Blasting of hard rock or demolition of concrete
- High pressure during testing of the relocated pipe lines, which could result in potentially dangerous situations in the event of the pipeline or fittings failing
- Potentially harmful gasses when tying into the existing sewer mains
- Movement of construction vehicles on site, taking into consideration steep slopes, other traffic and existing services
- Exposure to possible injuries due to mishandling or failure of power and hand tools
- Falling debris, tools and materials from bridge
- Non-conformance to specifications with regards to fasteners and materials
- Risks related to general safety and security on site

Additional risks may arise from specific methods of construction selected by the Contractor which are not necessary covered in the above.

OHS.2 DEFINITIONS

For the purpose of this contract the following shall apply:

- (a) **Employer** where used in the contract documents and in this specification, means the Employer as defined in the General Conditions of Contract and it shall have the exact same meaning as **client** as defined in the Construction Regulations 2014. **Employer** and **client** is therefore interchangeable and shall be read in the context of the relevant document.
- (b) **Contractor** wherever used in the contract documents and in this specification, shall have the same meaning as **Contractor** as defined in the General Conditions of Contract.

In this specification the terms **principal contractor** and **contractor** are replaced with **Contractor** and **subcontractor** respectively.

For the purpose of this contract the **Contractor** will, in terms of OHSA 1993, be the mandatory, without derogating from his status as an employer in his own right.

- (c) “**Engineer**” where used in this specification, means the Engineer as defined in the General Conditions of Contract. In terms of the Construction Regulations the Engineer may act as agent on behalf of the Employer (the client as defined in the Construction Regulations).

OHS.3 TENDERS

The Contractor shall submit the following with his tender:

- (a) a documented Health and Safety Plan as stipulated in Regulation 7 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2014 and will be subject to approval by the Employer;
- (b) a declaration to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Construction Regulations 2014;
- (c) a declaration to the effect that he made provision in his tender for the cost of the health and safety measures envisaged in the Construction Regulations.
- (d) Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely in accordance with the Construction Regulations.

OHS.4 NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

After award of the contract, but before commencement of construction work, the Contractor shall, in terms of Regulation 4, notify the Provincial Director of the Department of Labour in writing if the following work is involved:

- (a) the demolition of structures and dismantling of fixed plant of height of 3,0m or more;
- (b) the use of explosives;
- (c) construction work that will exceed 30 days or 300 person-days;
- (e) excavation work deeper than 1,0m; or
- (f) working at a height greater than 3,0m above ground or landings.

The notification must be done in the form of the pro forma included under Section 9 (Forms to be Completed by Successful Tenderer) of the tender document.

A copy of the notification form must be kept on site, available for inspection by inspectors, Employer, Engineer, employees and persons on site.

OHS.5 RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 9 of the Construction Regulations 2014).

The risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract, and it shall include a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards identified.

The risk assessment shall be available on site for inspection by inspectors, Employer, Engineer, subcontractors, employees, trade unions and health and safety committee members, and must be monitored and reviewed periodically by the Contractor.

OHS.6 APPOINTMENT OF EMPLOYEES AND SUBCONTRACTORS

6.1 Health and Safety plan

The Contractor shall appoint his employees and any subcontractors to be employed on the contract, in writing, and he shall provide them with a copy of his documented Health and

Safety Plan, or relevant sections thereof. The Contractor shall ensure that all subcontractors and employees are committed to the implementation of his Safety Plan.

6.2 Health and safety induction training

The Contractor shall ensure that all employees under his control, including subcontractors and their employees, undergo a health and safety induction training course by a competent person before commencement of construction work. No visitor or other person shall be allowed or permitted to enter the site of the works unless such person has undergone health and safety training pertaining to hazards prevalent on site.

The Contractor shall ensure that every employee on site shall at all times be in possession of proof of the health and safety induction training issued by a competent person prior to commencement of construction work.

OHS.7 APPOINTMENT OF SAFETY PERSONNEL

7.1 Construction Supervisor

The Contractor shall appoint a full-time **Construction Supervisor** with the duty of supervising the performance of the construction work.

He may also have to appoint one or more competent employees to assist the construction supervisor where justified by the scope and complexity of the works.

7.2 Construction safety officer

Taking into consideration the size of the project and the hazards or dangers that can be expected, the Contractor shall appoint in writing a full-time or part-time **Construction Safety Officer** if so decided by the Inspector of the Department of Labour. The Safety Officer shall have the necessary competence and resources to perform his duties diligently.

Provision shall be made by the Contractor in his rates, to cover the cost of this dedicated construction safety officer appointed after award of the contract.

7.3 Health and safety representatives

In terms of **Section 17 and 18 of the Act (OHSA 1993)** the Contractor, being the employer in terms of the Act for the execution of the contract, shall appoint a **health and safety representative** whenever he has more than 20 employees in his employment on the site of the works. The health and safety representative must be selected from employees who are employed in a full-time capacity at a specific workplace.

The number of health and safety representatives for a workplace shall be at least one for every 100 employees.

The function of health and safety representative(s) will be to review the effectiveness of health and safety measures, to identify potential hazards and major incidents, to examine causes of incidents (in collaboration with his employer, the Contractor), to investigate complaints by employees relating to health and safety at work, to make representations to the employer (Contractor) or inspector on general matters affecting the health and safety of employees, to inspect the workplace, plant, machinery etc. on a regular base, to participate in consultations with inspectors and to attend meetings of the health and safety committee.

7.4 Health and safety committee

In terms of **Sections 17 and 18 of the Act (OHSA 1993)** the Contractor (as employer), shall establish one or more **health and safety committee(s)** where there are two or more health and safety representatives at a workplace. The persons selected by the Contractor to serve on the committee shall be designated in writing.

The function of the health and safety committee shall be to hold meetings at regular intervals, but at least once every three months, to review the health and safety measures on the contract, to discuss incidents related to health and safety with the Contractor and the inspector, and to make recommendations regarding health and safety to the Contractor and to keep record of recommendations and reports made by the committee.

7.5 Competent persons

In accordance with the Construction Regulations the Contractor has to appoint in writing **competent persons** responsible for supervising construction work on each of the following work situations that may be expected on the site of the works.

- (a) Risk assessment and induction training as described in Regulation 9 of the Construction Regulations;
- (b) Fall protection as described in Regulation 10;
- (c) Excavation work as described in Regulation 13;
- (d) Demolition work as described in Regulation 14;
- (e) Scaffolding work as described in Regulation 16;
- (f) Suspended platform operations as described in Regulation 17;
- (g) Material hoists as described in Regulation 19;
- (h) Bulk Mixing plant operations as described in Regulation 20;
- (i) Explosive actuated fastening device as described in Regulation 21;
- (j) Cranes as described in Regulation 22;
- (k) Construction vehicle and mobile plant inspections on a daily basis by a competent person as described in Regulation 23(1);
- (l) Control of all temporary electrical installation on the construction site as described in Regulation 24;
- (m) Stacking and storage on construction sites as described in Regulation 28; and
- (n) Fire precautions on construction sites as described in Regulation 29.

A competent person may be appointed for more than one part of the construction work with the understanding that the person must be suitably qualified and able to supervise at the same time the construction work on all the work situations for which he has been appointed.

The appointment of competent persons to supervise parts of the construction work does not relieve the Contractor from any of his responsibilities to comply with **all** requirements of the Construction Regulations.

OHS.8 RECORDS AND REGISTERS

In accordance with the Construction Regulations the Contractor is bound to keep records and registers related to health and safety on site for periodic inspection by inspectors, the Engineer, the Employer, trade union officials and subcontractors and employees. The following records and registers must be kept on site and shall be available for inspection at all times.

- (a) A copy of the OHSA 1993 Construction Regulations 2014;
- (b) A copy of this Health and Safety Specification;
- (c) A copy of the Contractor's Health and Safety Plan (Regulation 7);
- (d) A copy of the Notification of Construction Work (Regulation 4);
- (e) A health and safety file in terms of Regulation 7(1b) with inputs by the Construction Safety Officer (Regulation 8(5));
- (f) A copy of the risk assessment described in Regulation 9;
- (g) A full protection plan and the corresponding records of evaluation and training of employees working from elevated positions as described in Regulation 10;
- (h) Drawings pertaining to the design of structures (Regulation 11(1c)) and temporary works (Regulation 10) must be kept on site;
- (i) Pronouncement of the safety of excavations must be recorded in a register to be kept on site (Regulation 13(2)(h));
- (j) A copy of the certificate of the system design for suspended platforms (Regulation 17(3));
- (k) A notice must be affixed around the base towers of material hoists to indicate the maximum mass load, which may be carried at any one time by material hoists (Regulation 11(2));
- (l) Maintenance records of material hoists and inspection results must be kept in a record book to be kept on site (Regulation 19(8));
- (m) A record of any repairs to or maintenance of a batch plant must be kept on site (Regulations 19(8));
- (n) A warning notice must be displayed in a conspicuous manner when and wherever an

explosive powered tool is used (Regulation 21(2));

- (o) A register for recording of findings by the competent person appointed to inspect construction vehicles and mobile plant (Regulation 23(1) (k)).

OHS.9 CONTRACTORS RESPONSIBILITIES

For this contract the Contractor will be the mandatory of the Employer (Client), as defined in the Act (OHS 1993), which means that the Contractor has the status of employer in his own right in respect of the contract. The Contractor is therefore responsible for all the duties and obligations of an employer as set out in the Act (OHS 1993) and the Construction Regulations 2014.

Before commencement of work under the contract, the Contractor shall enter into an agreement with the Employer (Client) to confirm his status as mandatory (employer) for the contract under consideration.

The Contractor's duties and responsibilities are clearly set out in the Construction Regulations 2014, and are not repeated in detail but some important aspects are highlighted hereafter, without relieving the Contractor of any of his duties and responsibilities in terms of the Construction Regulations.

- (a) Contractor's position in relation to the Employer (Client) (Regulation 5)

In accordance with Section 4 of the Regulations, the Contractor shall liaise closely with the Employer or the Engineer on behalf of the Employer, to ensure that all requirements of the Act and the Regulations are met and complied with.

- (b) The Principal Contractor and Contractor (Regulation 7)

The Contractor is in terms of the definition in Regulation 2(b) the equivalent of Principle Contractor as defined in the Construction Regulations, and he shall comply with all the provisions of Regulation 7.

Any subcontractors employed by the Contractor must be appointed in writing, setting out the terms of the appointment in respect of health and safety. An independent subcontractor shall however provide and demonstrate to the Contractor a suitable, acceptable and sufficiently documented health and safety plan before commencement of the subcontract. In the absence of such a health and safety plan the subcontractor shall undertake in writing that he will comply with the Contractor's safety plan, the health and safety specifications of the Employer and the Construction Regulations 2014.

- (c) Management Supervision of construction work (Regulation 8)

The Contractor shall appoint the safety and other personnel and employees as required in terms of Regulation 8 and as set out in paragraph 7 above. Appointment of those personnel and employees does not relieve the Contractor from any of the obligations under Regulation 8.

- (d) Risk assessment for construction works (Regulation 9)

The Contractor shall have the risk assessment made as set out in paragraph 3 above before commencement of the work and it must be available on site for inspection at all times. The Contractor shall consult with the health and safety committee or health and safety representative(s) etc. on a regular basis to ensure that all employees, including subcontractors under his control, are informed and trained by a competent person regarding health hazards and related work procedures.

No subcontractor, employee or visitor shall be allowed to enter the site of works without prior health and safety induction training, all as specified in Regulation 9.

- (e) Fall protection (Regulation 10)

Fall protection, if applicable to this contract shall comply in all respects with Regulation

10 of the Construction Regulations.

(f) Structures (Regulation 11)

The Contractor will be liable for all claims arising from collapse or failure of structures if he failed to comply with all the specifications, project specifications and drawings related to the structures, unless it can be proved that such collapse or failure can be attributed to faulty design or insufficient design standards on which the specifications and the drawings are based.

In addition the Contractor shall comply with all aspects of Regulation 11 of the Construction Regulations.

(g) Temporary works (Regulation 12)

The Contractor will be responsible for the adequate design of all formwork and support structures by a competent person.

All drawings pertaining to formwork shall be kept on site and all equipment and materials used in formwork, shall be carefully examined and checked for suitability by a competent person.

The provisions of Regulation 12 of the Construction Regulations shall be followed in every detail.

(h) Excavation (Regulation 13)

It is essential that the Contractor shall follow the instructions and precautions in the Standard Specifications and Project Specifications as well as the provisions of the Construction Regulations to the letter as unsafe excavations can be a major hazard on any construction site. The Contractor shall therefore ensure that all excavation work is carried out under the supervision of a competent person, that inspections are carried out by a Professional Engineer or Technologist, and that all work is done in such a manner that no hazards are created by unsafe excavations and working conditions.

Supervision by a competent person will not relieve the Contractor from any of his duties and responsibilities under Regulation 13 of the Construction Regulations.

(i) Demolition work (Regulation 14)

Whenever demolition work is included in a contract, the Contractor shall comply with all the requirements of Regulation 14 of the Construction Regulations. The fact that a competent person has to be appointed by the Contractor does not relieve the Contractor from any of his responsibilities in respect of safety of demolition work.

(j) Tunneling (Regulation 15)

The Contractor shall comply with Regulation 15 wherever tunneling of any kind is involved.

(k) Scaffolding (Regulation 16)

The Contractor shall ensure that all the provisions of Regulation 16 of the Construction Regulations are complied with. [Note: Reference in the Regulations to “Section 44 of the Act” should read “Section 43 of the Act”].

(l) Suspended platforms (Regulation 17)

Wherever suspended platforms will be necessary on any contract, the Contractor shall ensure that copies of the system design issued by a Professional Engineer are submitted to the Engineer for inspection and approval. The Contractor shall appoint competent persons as supervisors and competent scaffold erectors, operators and inspectors and ensure that all work related to suspended platforms are done in accordance with Regulation 17 of the Construction Regulations.

(m) Rope Access (Regulation 18)

Where rope access are required on the construction site, the Contractor shall comply with Regulation 18.

(n) Material Hoists (Regulation 19)

Wherever applicable, the Contractor shall comply with the provisions of Regulation 19 to the letter.

(o) Bulk Mixing plants (Regulation 20)

Wherever applicable, the Contractor shall ensure that all lifting machines, lifting tackle, conveyors, etc. used in the operation of a batch plant shall comply with, and that all operators, supervisors and employees are strictly held to the provisions of Regulation 20. The Contractor shall ensure that the General Safety Regulations (Government Notice R1031 of 30 May 1986), the Driven Machinery Regulations (Government Notice R295 of 26/2/1988) and the Electrical Installation Regulations (Government Notice R2271 of 11/10/1995) are adhered to by all involved.

In terms of the Regulations, records of repairs and maintenance shall be kept on site.

(p) Explosive actuated fastening devices (Regulation 21)

The Contractor shall ensure that, wherever explosive-powered tools are required to be used, all safety provisions of Regulation 21 are complied with.

It is especially important that warning notices are displayed and that the issue and return of cartridges and spent cartridges be recorded in a register to be kept on site.

(q) Cranes (Regulation 22)

Wherever the use of tower cranes becomes necessary, the provisions of Regulation 22 shall be complied with.

(r) Construction vehicles And mobile plant (Regulation 23)

The Contractor shall ensure that all construction vehicles and plant are in good working condition and safe for use, and that they are used in accordance with their design and intended use. The vehicles and plant shall only be operated by workers or operators who have received appropriate training, all in accordance with all the requirements of Regulation 23.

All vehicles and plant must be inspected on a daily basis, prior to use, by a competent person and the findings must be recorded in a register to be kept on site.

(s) Electrical installation and machinery on construction sites (Regulation 24)

The Contractor shall comply with the Electrical Installation Regulations (Government Notice R2920 of 23 October 1992) and the Electrical Machinery Regulations (Government Notice R1953 of 12 August 1993). Before commencement of construction, the Contractor shall take adequate steps to ascertain the presence of, and guard against dangers and hazards due to electrical cables and apparatus under, over or on the site.

All temporary electrical installations on the site shall be under the control of a competent person, without relieving the Contractor of his responsibility for the health and safety of all workers and persons on site in terms of Regulation 24.

(t) Use of temporary storage of flammable liquids on construction sites (Regulation 25)

The Contractor shall comply with the provisions of the General Safety Regulations (Government Notice R1031 of 30 May 1986) and all the provisions of Regulation 25 of the Construction Regulations to ensure a safe and hazard-free environment to all workers and other persons on site.

(u) Water environments (Regulation 26)

Where construction work is done over or in close proximity to water, the provisions of Regulation 26 shall apply.

(v) Housekeeping and general safeguarding on construction sites (Regulation 27)
Housekeeping on all construction sites shall be in accordance with the provisions of the environment Regulations for workplaces (Government Notice R2281 of 16 October 1987) and all the provisions of Regulation 27 of the Construction Regulations.

(w) Stacking and storage on construction sites (Regulation 28)

The provisions for the stacking of articles contained in the General Safety Regulations (Government Notice R1031 of 30 May 1986) as well as all the provisions Regulation 28 of the Construction Regulations shall apply.

(x) Fire precautions on construction sites (Regulation 29)

The provisions of the Environmental Regulations for Workplaces (Government Notice R2281 of 16 October 1987) shall apply.

In addition the necessary precautions shall be taken to prevent the incidence of fires, to provide adequate and sufficient fire protection equipment, sirens, escape routes etc. all in accordance with Regulation 29 of the Construction Regulations.

(y) Construction welfare facilities (Regulation 30)

The Contractor shall comply with the construction site provisions as in the Facilities Regulations (Government Notice R1593 of 12 August 1988) and the provisions of Regulation 30 of the Construction Regulations.

(z) Non-compliance with the Construction Regulations 2014

The foregoing is a summary of parts of the Construction Regulations applicable to all construction projects.

The Contractor, as employer for the execution of the contract, shall ensure that all provisions of the Construction Regulations applicable to the contract under consideration are complied with to the letter.

Should the Contractor fail to comply with the provisions of the Regulations 4 to 30 as listed in Regulation 33, he will be guilty of an offence and will be liable, upon conviction, to the fines or imprisonment as set out in Regulation 33.

The Contractor is advised in his own interest to make a careful study of the Act and the Construction Regulations as ignorance of the Act and the Regulations will not be accepted in any proceedings related to non-conformance to the Act and the Regulations.

OHS.10 MEASUREMENT AND PAYMENT

10.1 Principles

It is a condition of this contract that Contractors, who submit tenders for this contract, shall make provision in their tenders for the cost of all health and safety measures during the construction process. All associated activities and expenditure are deemed to be included in the Contractor's tendered rates and prices.

(a) Safety personnel

The Construction Supervisor, the Construction Safety Officer, Health and Safety Representatives, Health and Safety Committee and Competent Persons referred to in

clauses 9.1 to 9.5 shall be members of the Contractor's personnel, and no additional payment will be made for the appointment of such safety personnel.

(b) Records and Registers

The keeping of health and safety-related records and registers as described in 8 is regarded as a normal duty of the Contractor for which no additional payment will be considered, and which is deemed to be included in the Contractor's tendered rates and prices.

C4: SITE INFORMATION

C4.1 TENDER DRAWINGS

C4.1 TENDER DRAWINGS

DESCRIPTION	DRAWING NO.
Construction Drawing	



Construction
drawing.pdf

****END OF DOCUMENT****
