AIRPORTS COMPANY SOUTH AFRICA (SOC) LTD

CAPE TOWN INTERNATIONAL AIRPORT

Demolition, Design and Re-Construction of the Old Bid-Air and Menzies Building at Cape Town International Airport

REFERENCE NUMBER: CIA6063/2019/RFP

NAME OF BIDDER:..................................................................................................................................................
# BIDDER'S DETAILS

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<tbody>
<tr>
<td>1.</td>
<td>NAME OF BIDDER (BIDDING ENTITY)</td>
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<td>(FULL NAME, i.e. (CC, (Pty) Ltd, Ltd, JV, SOLE PROPRIETOR etc.)</td>
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<td>2.</td>
<td>TEL NUMBER</td>
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<td>3.</td>
<td>PHYSICAL ADDRESS</td>
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<td>4.</td>
<td>EMAIL</td>
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<td>5.</td>
<td>NAME of CONTACT</td>
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<tr>
<td>6.</td>
<td>NATIONAL TREASURY CSD REGISTRATION NUMBER</td>
</tr>
<tr>
<td>7.</td>
<td>TENDER AMOUNT</td>
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C3 Scope of Work

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1 Tender Notice and Invitation to Tender

Airports Company South Africa invites suitably qualified contractors to bid for the Demolition, Design and Re-Construction of the Old Bid-Air and Menzies Building at Cape Town International Airport (CTIA).

Compulsory Briefing Session and Site Inspection

A compulsory clarification meeting and site inspection with representatives of the Employer will take place at Faranani Conference Room, Southern Office Block Building starting on the 25th of June 2019 at 13H00 hrs. Tenderers must sign the attendance register using the name of the tendering entity.

Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list.

The tenderer is advised to send representatives to the compulsory site briefing who are technically orientated or who have knowledge of the built environment and who will take responsibility.

For the site inspection, the bidder representatives are advised to bring the following:

- A copy of an ID;
- A reflector jacket; and
- Safety shoes

Collection of Documents

Tender Documents can be downloaded free of charge from the National Treasury’s eTender Publication Portal and Airports Company South Africa Tender Bulletin from 18 June 2019. No hard or soft copies of the tender document will be made available directly from ACSA.

These are the links:

www.etenders.gov.za


Should you encounter any difficulties downloading the document please email all enquiries as per the contact information below.

Submission Closing Date

Bidders must submit bid documentation bound in envelopes/files together with an electronic copy. The envelope/file must be clearly marked on the outside with the following details:

- ACSA Location where the tender will close
- Bidding entity’s name
- Bidding entity’s return address
- Full description of the tender and tender reference number

The documents must be kept in the sequence and format they have been issued, signed and completed by a person who has been given authority to act on behalf of the bidding entity. The bottom of each page of the bid documents must be signed or stamped with the bidder’s stamp as proof that the bidder has read the bid documents.

The closing time for receipt of tender enquiries is **16h00 on 09 July 2019**.

The closing time for receipt of tenders is **12h00 on 16 July 2019**. All bid documentation must be sealed in a clearly marked envelope and placed in a tender box situated at the ACSA Tender Box at Reception Area, Southern Office Block, Cape Town International Airport.

Telegraphic, telephonic, telex, facsimile, e-mail and late tenders will not be accepted.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

**Enquiries**

All communication and queries relating to any attempts to solicit information of any kind relative to this Tender should be channeled via email to: Andrew.mufema@airports.co.za or Kabelo.rapeu@airports.co.za

**Prequalification Requirements**

- Only tenderers who have valid B-BBEE contributor level of 1 or level 2 are eligible to bid for this tender.
- Minimum 51% Black Ownership.
- The main bidder’s subcontractor, if applicable, must meet the following requirements:
  - have valid B-BBEE status level 1 or level 2

Please note the following:

- **A tenderer awarded a contract may not subcontract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level of contributor than the person concerned, unless the contract is subcontracted to an EME that has the capability and ability to execute the subcontract.**
- **Joint Ventures are required to submit a joint BBBEE certificate**
Minimum Requirements

Cape Town International Airport, invites tenders for the demolition, design and reconstruction of Old Bid Air and Menzies warehouse at Cape Town International Airport. The mandatory administrative requirement are as follows:

- The contractor should have a CIDB grading designation of **Grade 6GB/CE** or higher. Joint Ventures are required to submit a joint CIDB grading
- A Joint Venture agreement where applicable
- Tenderers must submit a valid COIDA certificate or proof of application for a new one
- The Design Consultant should be an entity registered with CIPC and CESA where applicable
- Registration with the Department of Labour as an Asbestos contractor for main bidder or subcontractor
- SAFCEC registration

Should the tenderer not meet the requirements set be above, the tenderer may be disqualified from the next evaluation stage.
T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement. (see www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The additional conditions of tender are:

<table>
<thead>
<tr>
<th>Clause number</th>
<th>Tender Data</th>
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<tr>
<td>F.1.1</td>
<td>The employer is the ACSA Airports</td>
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<td>F.1.2</td>
<td>The tender documents issued by the employer comprises:</td>
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<td></td>
<td>T1.1 Tender notice and invitation to tender</td>
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<td></td>
<td>T1.2 Tender data</td>
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<tr>
<td></td>
<td>T2.1 List of returnable documents</td>
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<td></td>
<td>T2.2 Returnable schedules</td>
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<td></td>
<td>Part 1: Agreements and contract data</td>
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<td></td>
<td>C1.1 Form of offer and acceptance</td>
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<td>C1.2 Contract data</td>
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<td></td>
<td>C1.3 Form of Guarantee</td>
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<td></td>
<td>C1.4 Adjudicator’s appointment</td>
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<td>Part 2: Pricing data</td>
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<td></td>
<td>C2.1 Pricing instructions</td>
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<tr>
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<td>C2.2 Activity schedules / Bills of Quantities</td>
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<td>Part 3: Scope of work</td>
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<td>C3 Scope of work</td>
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<td>Part 4: Site information</td>
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<td>C4 Site information</td>
</tr>
</tbody>
</table>

F.2.1 Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a Grade 6GB/CE (R6 500 001 to R13 000 000) or higher.

Joint ventures are eligible to submit tenders provided that:

1. Every member of the joint venture is registered with the CIDB;
2. The lead Partner has a contractor grading designation in the Grade 6GB/CE (R6 500 001 to R13 000 000 or higher). General Building or Civil Engineering class of construction work;
3. The combined contractor grading designation calculated in accordance with the Construction
Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a (GB) General Building class of construction work.

F.2.7 There is a compulsory clarification meeting. Refer to page 2 of Part T1- Tendering procedures

F.2.12 No alternative tender offers will be considered

F.2.13.3 Parts of each tender offer communicated on paper shall be submitted as one original (i.e. no copies should be submitted).

F.2.13.5 The employer’s address for delivery of tender offers and identification details to be shown on each tender offer package are:

Location of Tender Box:

Physical address: -

Tender Box at Reception Area, Southern Office Block, Cape Town International Airport

Identification details:

Tender number: CIA6063/2019/RFP

Title: DEMOLITON, DESIGN AND RE-CONSTRUCTION OF THE OLD BID AIR AND MENZIES BUILDING AT CAPE TOWN INTERNATIONAL AIRPORT

Closing date: 16 JULY 2019
Closing time: 12h00 PM

F.2.13 A two-envelope procedure will not be followed.

F.2.15 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

F.2.15 Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.

F.2.16 The tender offer validity period is 84 calendar days.

F.2.23 The tenderer is required to submit with his tender a copy of proof of his/her CIDB Grading (Construction Industry Development Board) and a copy of an original valid Tax Clearance Certificate issued by the South African Revenue Services. Where a tenderer satisfies CIDB contractor grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in
respects of each partner.

F.3.4 Tenders will not be opened immediately after the closing time for tenders at 12h00. No price reading will be done at tender closing.

**CIDB Grading: GRADE 6GB/CE OR HIGHER**

Construction Period: 24 Weeks

**EVALUATION CRITERIA**

1) The 80/20 preferential point system shall apply. Tenders will be evaluated on the following criteria:

2) A tenderer who scores **less than a minimum of 60% on the functionality section** will not be considered for further evaluation.

**Functionality**

The functionality will be scored using the following values:

A maximum equal to **100 evaluation points will be awarded for functionality**, for the elimination purposes.

A tenderer who scores **less than a minimum of 60% on the functionality section** will not be considered for further evaluation.

**Evaluation Summary Table**

<table>
<thead>
<tr>
<th>#</th>
<th>Evaluation Area</th>
<th>Max</th>
<th>Min</th>
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<tbody>
<tr>
<td>1</td>
<td>Company’s Work Experience</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>Key Staff Experience and Qualifications</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>Demolition Methodology</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Quality Management System</td>
<td>10</td>
<td>6</td>
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<tr>
<td>5</td>
<td>Financial Performance</td>
<td>15</td>
<td>9</td>
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<td></td>
<td><strong>Total</strong></td>
<td>100</td>
<td>60</td>
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The 80/20 preferential point system

The 80/20 preferential point system shall apply. Tenders will be evaluated on the following criteria:

A maximum equal to **20 tender evaluation points will be awarded** based on B-BBEE Status Level of Contributor

<table>
<thead>
<tr>
<th>B-BBEE STATUS LEVEL OF CONTRIBUTOR</th>
<th>NUMBER OF POINTS</th>
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<tr>
<td>1</td>
<td>10</td>
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<td>2</td>
<td>9</td>
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<td>8</td>
<td>1</td>
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<tr>
<td>NON – COMPLIANT CONTRIBUTOR</td>
<td>0</td>
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</tbody>
</table>
FINANCIAL OFFER / PRICE

A MAXIMUM EQUAL TO 80 TENDER EVALUATION POINTS WILL BE AWARDED FOR FINANCIAL OFFER / PRICE

F3.13.1 Tender offers will only be accepted if:
   a) the tenderer has in his or her possession an original valid Tax Clearance Certificate issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations;
   b) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation;
   c) the tenderer or any of its directors is not listed on the Register of Tender 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;
   d) the tenderer has not:
      i) abused the Employer’s Supply Chain Management System; or
      ii) failed to perform on any previous contract and has been given a written notice to this effect; and
   e) has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer’s ability to perform the contract in the best interests of the employer or potentially compromise the tender process.

F3.18 The number of paper copies of the signed contract to be provided by the employer is one.
Annexure: Standard Conditions of Tender

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

F.1.2 Tender Documents

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

F.1.3 Interpretation

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

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

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 tenderer’s financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered 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 tender process; and

c) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels

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 tenderer 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 tenderer. The name and contact details of the employer’s agent are stated in the tender data.
F.1.5 The employer’s right to accept or reject any tender offer

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer 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 tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

Please note that ACSA reserves the right to:

1. Award the whole or a part of this tender;
2. Split the award of this tender;
3. Negotiate with all or some of the shortlisted bidders;
4. Award the tender to a bidder other than the highest scoring bidder where objective criteria allow;
5. To reject the lowest acceptable tender received; and/or
6. Cancel this tender.

F.2 Tenderer’s obligations

F.2.1 Eligibility

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

F.2.2 Cost of tendering

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

F.2.3 Check documents

Check the tender 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 tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender 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 tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the tender offer

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

F.2.10.2 Show VAT payable by the employer separately as an addition to the tendered 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 tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

F.2.11 Alterations to documents

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

F.2.12 Alternative tender offers

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

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

F.2.13 Submitting a tender offer

F.2.13.1 Submit a tender offer to provide the whole of the works, services or supplies identified in the contract data and described in the scope of works, unless stated otherwise in the tender 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 tender offer communicated on paper as an original stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as the employer issued them.

F.2.13.4 Sign the original of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

F.2.13.5 Seal the original of the tender offer, marking the package "ORIGINAL". The outside of the envelope should state the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

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

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

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

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

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

F.2.15 Closing time

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

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

F.2.16 Tender offers validity

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

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

F.2.17 Clarification of tender offer after submission

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

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

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 tender offer, the tenderer’s commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer’s request, the employer may regard the tender offer as non-responsive.

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 tender 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 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 tender documents

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

F.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender 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 tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

F.3.2 Issue Addenda

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

F.3.3 Return late tender offers

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

F.3.4 Opening of tender submissions

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

F.3.4.2 Announce at the opening held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened, the total of his prices, preferences claimed and time for completion, if any, for the main tender 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 tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers’ agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

F.3.5.2 Evaluate the quality of the technical proposals offered by tenderers, then advice tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the quality evaluation above the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

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

F.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.
F.3.8 Test for responsiveness

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

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

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

• Detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
• Change the Employer's or the tenderer's risks and responsibilities under the contract, or
• Affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

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

F.3.9 Arithmetical errors

Check responsive tender 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 tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if a bills of quantities applies) to achieve the tendered total of the prices.

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

F.3.10 Clarification of a tender offer

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

F.3.11
The procedure for the evaluation of responsive tenders is Method 4

The financial offer will be scored using Formula 1 (option 1) where the value of \( W_1 \) is:

1) 80 where the financial value inclusive of VAT of all responsive tenders received have a value below R50 000 000; or

The functionality will be scored using the following values:

1) A maximum equal to 100 tender evaluation points will be awarded where the financial value inclusive of VAT of all responsive tenders received have a value below of R50 000 000, sub-divided according to the following:

For projects below R50 000 000.00 80/20 the points are allocated as follows: **The below scoring system applies.**
## Functionality Evaluation Criteria

<table>
<thead>
<tr>
<th>No</th>
<th>Evaluation Area</th>
<th>Evaluation Criteria</th>
<th>Weighting</th>
<th>Minimum Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Company's Work Experience</td>
<td>Work Experience:</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Points shall be allocated to tenderers based on their previous experience on Industrial structural projects and Structural Engineering projects. The points will be allocated as shown on 1.1 below</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tenderers reference letters will be deemed as valid if they satisfy the following requirements:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- they are on a client letter head,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- are signed by the client,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- indicate the type of work done,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- state the value of the contract,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- state the duration of the contract and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Include name and contact information (phone and email) of client representative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Provide a detailed list of all successfully completed building and construction works on Industrial structural projects with similar or greater scope to this tender over the past 10 years and include the duration of each project and contract periods.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Evidence – reference letters/completion certificate from past clients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less than 2 Projects = 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 to 5 Projects = 12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>greater than 5 Projects = 20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Provide details of the project value of work completed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Evidence – reference letters/completion certificate from past clients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less R3m = 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>R3m to R8.5m = 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than R8.5m = 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tender
Part T1: Tendering Procedures
Reference: CIA6063/2019/RF

T1.2
Tender Data
<table>
<thead>
<tr>
<th></th>
<th>Demonstrate experience on demolition and disposal of asbestos</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Evidence – reference letters/completion certificate from past clients for the main bidder and/or their subcontractor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.1 Key Personnel with relevant experience and who hold relevant academic qualification(s) recognised by the South African Qualifications Authority, qualifications are to be a NQF Level 5 or higher to be considered for scoring purposes.

<table>
<thead>
<tr>
<th>Experience of the Construction/Project Manager or Site Agent</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant experience in building and construction works on Industrial structural projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence: Detailed CVs demonstrating relevant experience and employment history with number of years clearly highlighted.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Experience of the Project Designer</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant design experience in Industrial structural projects and Structural Engineering projects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence: Detailed CVs demonstrating relevant experience and employment history with number of years clearly highlighted.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Staff Experience and Qualifications</td>
<td>Years of Experience</td>
<td></td>
</tr>
<tr>
<td>Key Personnel</td>
<td>30</td>
<td>18</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Demolition experience only = 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demolition and asbestos experience = 5</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 10 years = 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 to 15 years = 9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than 15 years = 15</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 5 years = 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 to 10 years =</td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than 10 years = 15</td>
<td></td>
</tr>
</tbody>
</table>

21
Qualifications of the **Project Designer**
BTech/BSc Civil Engineering registered with ECSA as Professional Technologist or Professional Engineer.

Evidence: Copies of certificates of relevant qualifications. Points will not be allocated where copies of certificates are not submitted.

<table>
<thead>
<tr>
<th>Qualified,</th>
</tr>
</thead>
<tbody>
<tr>
<td>• but not registered = 0</td>
</tr>
<tr>
<td>• less than 5 years post registration = 3</td>
</tr>
<tr>
<td>• more than 5 years post registration = 5</td>
</tr>
</tbody>
</table>

## 3 Demolition and Asbestos Disposal Methodology

Demolition and Asbestos Methodology that indicate thorough understanding of demolition works required, this methodology covers aspects of Structural Engineering, Health and Safety act, Environmental management act and Operational requirements of the airport

<table>
<thead>
<tr>
<th>3.1 The Demolition Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>• does not satisfactorily cover any of the above stated aspects = 0</td>
</tr>
<tr>
<td>• satisfactorily covers at least 3 aspects including Health and Safety act and Environmental management = 6</td>
</tr>
<tr>
<td>• satisfactorily covers all aspects stated above = 10</td>
</tr>
</tbody>
</table>

## 4 Quality Management Systems (QMS)

Provide a detailed quality management system that will be implemented to ensure each phase and each aspect of the project is successfully implemented

<table>
<thead>
<tr>
<th>4.1 The quality management system should include the following aspects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Full life cycle of project from start to finish</td>
</tr>
<tr>
<td>2. How design and quality management will be done</td>
</tr>
<tr>
<td>3. How accuracy and quality of costing will be done</td>
</tr>
<tr>
<td>• No QMS = 0</td>
</tr>
<tr>
<td>• Generic QMS = 6</td>
</tr>
<tr>
<td>• QMS is relevant to the project = 10</td>
</tr>
</tbody>
</table>
4. How quality checks will be done on completeness of construction scope and time
5. Detail of how quality management will be done during construction
6. In all the above does it discuss how deviations will be addressed

<table>
<thead>
<tr>
<th>5</th>
<th>Financial Performance</th>
<th>15</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points are allocated for the cash flow management demonstrated by the tenderer from bank rating.</td>
<td>15</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>5.1 Cash flow management demonstrated by the tenderer from bank rating.</td>
<td>Bank rating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank rating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rating C=15 points</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rating D=12 points</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rating E=9 points</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rating F=0 point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No submission=0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE:

a) A tenderer who has scored less than (60%) 60/100 Points on the functionality section will not be considered any further
b) Only Directors or shareholders of the company qualify to claim Preference Point
c) Should it be discovered that false information has been provided the tender (offer) shall be invalidated
F3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate it using the tender evaluation method (method 4) that is indicated in the Tender Data and described below:

| Method 1: Financial offer | 1) Rank tender offers from the most favorable to the least favorable comparative offer.  
|                          | 2) Recommend highest ranked tenderer 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 tender evaluation points for financial offer.  
|                                          | 2) Confirm that tenderers are eligible for the preferences claimed and if so, score tender evaluation points for preferencing.  
|                                          | 3) Calculate total tender evaluation points.  
|                                          | 4) Rank tender offers from the highest number of tender evaluation points to the lowest.  
|                                          | 5) Recommend tenderer with the highest number of tender 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 tender offers that fail to score the minimum number of points for quality stated in the Tender data.  
|                                     | 2) Score tender evaluation points for financial offer.  
|                                     | 3) Calculate total tender evaluation points.  
|                                     | 4) Rank tender offers from the highest number of tender evaluation points to the lowest.  
|                                     | 5) Recommend tenderer with the highest number of tender 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 tender offers that fail to score the minimum number of points for quality stated in the Tender data.  
|                                                   | 2) Score tender evaluation points for financial offer.  
|                                                   | 3) Confirm that tenderers are eligible for the preferences claimed, and if so, score tender evaluation points for preferencing.  
|                                                   | 4) Calculate total tender evaluation points. |
5) Rank tender offers from the highest number of tender evaluation points to the lowest.
6) Recommend tenderer with the highest number of tender 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 tender offers using the following formula:

\[ N_{FO} = W_1 \times A \]

where:
- \( N_{FO} \) = the number of tender evaluation points awarded for the financial offer.
- \( W_1 \) = the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.
- \( A \) = a number calculated using either formulas 1 or 2 below as stated in the Tender Data.

<table>
<thead>
<tr>
<th>Formula</th>
<th>Basis for comparison</th>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Highest price or discount</td>
<td>((1 + \frac{(P - P_m)}{P_m}))</td>
<td>(P/P_m)</td>
</tr>
<tr>
<td>2</td>
<td>Lowest price or percentage commission/fee</td>
<td>((1 - \frac{(P - P_m)}{P_m}))</td>
<td>(P_m/P)</td>
</tr>
</tbody>
</table>

where:
- \( P_m \) = the comparative offer of the most favorable tender offer.
- \( P \) = the comparative offer of tender offer under consideration.

**F.3.11.3 Scoring quality (functionality)**

Score quality in each of the categories stated in the Tender Data and calculates total score for quality.

**F.3.12 Insurance provided by the employer**

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

**F.3.13 Acceptance of tender offer**

**F.3.13.1 Accept tender offer only if the tenderer satisfies the legal requirements stated in the Tender**
F.3.13.2 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender 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 tenderer as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful tenderers

After the successful tenderer has acknowledged the employer's notice of acceptance, notify other tenderers that their tender 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 tender documents to take account of:

a) addenda issued during the tender period,
b) inclusion of some of the returnable documents,
c) other revisions agreed between the employer and the successful tenderer, 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 tenderer 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 tender require the tenderer 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 tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.
T2.1 List of Returnable Documents

The tenderer must complete the following returnable documents:

1. **Returnable Schedules required only for tender evaluation purposes** (certified copies or originals of the following documents):
   - B-BBEE certificate
   - Record of Addenda to Tender documents
   - A signed attendance register
   - Compulsory Supplier Questionnaire
   - Certificate of Authority for Signature
   - Schedule of proposed subcontractors
   - Key Personnel (attach CV and Academic certificates)
   - Preliminary Programme
   - Proposed Amendments and Qualifications
   - Legal Joint Venture Agreement (in case of a JV)
   - Identity documents of Owners / Directors / Members / Shareholders
   - Copy of contractor Registration for Incorporation or of Company Registration Document
   - Closed Corporation to attach an Association Agreement
   - Shareholders’ Agreement / Share certificates / Memorandum of Association for companies
   - Tender’s Financial Standing (Bank rating)
   - Valid VAT certificate (where applicable)
   - An original valid Tax Clearance Certificate issued by the South African Revenue Services
   - Copy of COIDA (Compensation for Occupational Injuries and Diseases) registration certificate, eg Letter of Good Standing
   - CIDB Grading
   - Contractor’s Health and Safety Plan
   - Closed Corporation to attach an Association Agreement
   - Declaration of Interest

2. **Compulsory Returnable Schedules (certified copies/originals of the following documents)**
   - Signed Form of Offer
   - Construction Industry Development Board (CIDB) registration number
   - Record of Addenda to Tender Documents (where applicable)
   - Certificate of Authority for Signature
   - Legal Joint Venture Agreement (in case of a JV)
   - Identity documents of Owners / Directors / Members / Shareholders
   - Contractor Registration for Incorporation or Company Registration Document
• Shareholders' Agreements / Share Certificates / Memorandum of Association for companies (where applicable)
• Valid VAT Certificate (where applicable)
• A valid Tax Clearance Certificate issued by the South African Revenue Services
• Valid copy of COIDA (Compensation for Occupational Injuries and Diseases) registration certificate, e.g. Letter of Good Standing
• Contractor's Health and Safety Declaration
• Form of intent by a bank or insurance company to provide a performance guarantee (for open tenders)
• Declaration of Interest (SBD 4)
• Preference Points Claim form in terms of the Preferential Procurement Regulation (SBD 6.1)
• Declaration Certificate for Local Production and Content for Designated Sectors (SBD 6.2)
• Declaration of Bidders Past Supply Chain Management practices (SBD 8)
• Certificate of Independent bid Determination (SBD 9)

3. Returnable Schedules that will be incorporated into the contract
   • Preferencing Schedule (direct preferences) for the 90:10 or the 80:20

4. Other documents that will be incorporated into the contract
   • None

5. The offer portion of the C1.1 Offer and Acceptance

6. C1.2 Contract Data (Part 2)

7. C2.2 Bills of quantities
PROOF OF B-BBEE Certificate
## Record of Addenda to tender documents

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Title or Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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<tr>
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<td></td>
</tr>
</tbody>
</table>

Attach additional pages if more space is required.

Signed

__________________________
Name

__________________________
Position

__________________________
Identity number

__________________________
Tenderer
CERTIFICATE OF ATTENDANCE AT COMPULSARY BRIEFING MEETING

This is to certify that (tenderer) ..................................................................................................................

of (address) ..................................................................................................................................................

........................................................................................................ was represented by the person(s)

named below at the compulsory meeting held for all tenderers at (location).................................

........................................ on (date)............................... starting at (time) ...........................................

I / We acknowledge that the purpose of the meeting was to acquaint myself / ourselves with the site of the

works and / or matters incidental to doing the work specified in the tender documents in order for me / us
to take account of everything necessary when compiling our rates and prices included in the tender.

Particulars of person(s) attending the meeting:

Name: .................................................... Signature: .................................................................

Capacity: .................................................... Identity number: .................................................

Name: .................................................... Signature: .................................................................

Capacity: .................................................... Identity number: .................................................

Attendance of the above person(s) at the meeting is confirmed by the Employer's (ACSA)

representative, namely:

Name: .................................................... Signature: .................................................................

Capacity: .................................................... Date and Time: .....................................................
Compulsory Supplier Questionnaire

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

Section 1: Name of enterprise: .................................................................

Section 2: VAT registration number, if any: ............................................

Section 3: CIDB registration number, if any: ............................................

Section 4: Particulars of sole proprietors and partners in partnerships

<table>
<thead>
<tr>
<th>Name*</th>
<th>Identity number*</th>
<th>Personal income tax number*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Section 5: Particulars of companies and close corporations

Company registration number .................................................................

Close corporation number .................................................................

Tax reference number ...........................................................................

Section 6: Record of service of the state

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

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

<table>
<thead>
<tr>
<th>Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder</th>
<th>Name of institution, public office, board or organ of state and position held</th>
<th>Status of service (tick appropriate column)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>current</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</table>

*insert separate page if necessary*

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

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

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

<table>
<thead>
<tr>
<th>Name of spouse, child or parent</th>
<th>Name of institution, public office, board or organ of state and position held</th>
<th>Status of service (tick appropriate column)</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;

iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;

iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

<table>
<thead>
<tr>
<th>Signed</th>
<th>Date</th>
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<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<table>
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<tr>
<th>Identity number</th>
<th>Enterprise name</th>
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</table>
CERTIFICATE OF AUTHORITY FOR SIGNATORY

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for the relevant category, and attach their Registration Certificates for Companies, Close Corporations and Partnerships, or Agreements and Powers of Attorney for Joint Ventures, or ID documents to the page provided at the end of this form.

<table>
<thead>
<tr>
<th>(I) COMPANY</th>
<th>(II) CLOSE CORPORATION</th>
<th>(III) PARTNERSHIP</th>
<th>(IV) JOINT VENTURE</th>
<th>(V) SOLE PROPRIETOR</th>
</tr>
</thead>
</table>

(I) CERTIFICATE FOR COMPANY

I, .............................................................., Id number ........................................, chairperson of the Board of Directors of .............................................................. hereby confirm that by resolution of the Board (copy attached) taken on ...................................................... 20......, Mr/Ms ................................. acting in the capacity of .............................................................., was authorised to sign all documents in connection with the tender for Contract No ............... and any contract resulting from it, on behalf of the company.

Chairman: ................................................................................................................

As Witnesses: 1. ................................................................................................................

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

(II) CERTIFICATE FOR CLOSE CORPORATION

We, the undersigned, being the key members in the business trading as .............................................................. hereby authorise Mr/Ms ................................., acting in the capacity of ................................., to sign all documents in connection with the tender for Contract No ............... and any contract resulting from it, on our behalf.

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
<th>SIGNATURE</th>
<th>DATE</th>
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<tbody>
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</table>

Note: This certificate is to be completed and signed by all of the key members upon whom rests the direction of the affairs of the Close Corporation as a whole.
(III) CERTIFICATE FOR PARTNERSHIP

We, the undersigned, being the key partners in the business trading as, ........................................
..................................................................................................................................................
hereby authorize Mr/Ms .................................................. to sign all documents
acting in the capacity of .........................................................., to sign all documents
in connection with the tender for Contract No ........................................ and any contract resulting from
it, on our behalf.

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
<th>SIGNATURE</th>
<th>DATE</th>
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</tbody>
</table>

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.

(IV) CERTIFICATE FOR JOINT VENTURE

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorize
Mr/Ms ............................................................., authorized signatory of the company, acting in the capacity
of lead partner, to sign all documents in connection with the tender offer for Contract No  and any contract
resulting from it, on our behalf.

This authorization is evidenced by the attached power of attorney signed by legally authorized signatories
of all the partners to the Joint Venture.
### NAME OF FIRM | ADDRESS | AUTHORISING SIGNATURE, NAME AND CAPACITY
---|---|---
Lead partner | | 
| | 
| | 

**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.

(V) **CERTIFICATE FOR SOLE PROPRIETOR**

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

**Signature** of Sole owner: ..................................................

As Witnesses:

1. .................................................................

2. .................................................................

Date: .................................................................
SCHEDULE OF PLANT AND EQUIPMENT (Not applicable)

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

(a) Details of major equipment owned by me / us and immediately available for this contract.

<table>
<thead>
<tr>
<th>DESCRIPTION (type, size, capacity etc)</th>
<th>QUANTITY</th>
<th>YEAR OF MANUFACTURE</th>
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</table>

Attach additional pages if more space is required

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

<table>
<thead>
<tr>
<th>DESCRIPTION (type, size, capacity etc)</th>
<th>QUANTITY</th>
<th>HOW ACQUIRED</th>
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<tbody>
<tr>
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<td>HIRE/BUY</td>
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<td>SOURCE</td>
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</table>

Attach additional pages if more space is required

The Tenderer undertakes to bring onto site without additional cost to the Employer any additional plant not listed but which may be necessary to complete the contract within the specified contract period.
Failure to complete this form properly and correctly, will lead to the conclusion that the tenderer does not have the necessary plant and equipment resources at his disposal, which will prejudice his tender.

SIGNATURE: .............................................  IDENTITY NUMBER: ..........................................

(of person authorised to sign on behalf of the Tenderer)  DATE:.............................................
EXPERIENCE OF TENDERER

The following is a statement of work of similar nature recently successfully executed by myself / ourselves.

Full details of current projects must also be listed here with all relevant contact details:

<table>
<thead>
<tr>
<th>EMPLOYER: CONTACT PERSON AND TELEPHONE NUMBER</th>
<th>CONSULTING ENGINEER: CONTACT PERSON AND TELEPHONE NUMBER</th>
<th>NATURE OF WORK</th>
<th>VALUE OF WORK (inclusive of VAT)</th>
<th>DATE COMPLETED OR EXPECTED TO BE COMPLETED</th>
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</table>

SIGNATURE: ......................................................  IDENTITY NUMBER: ........................................

(of person authorised to sign on behalf of the Tenderer)  DATE:........................................
TRADE REFERENCES

The following is a statement of traceable, current trade references (suppliers and/or plant hire):

<table>
<thead>
<tr>
<th>SUPPLIER / PLANT HIRE NAME</th>
<th>TYPE OF SUPPLIER / PLANT HIRE</th>
<th>CONTACT PERSON</th>
<th>CONTACT NUMBER</th>
</tr>
</thead>
<tbody>
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</table>

SIGNATURE: ...........................................  IDENTITY NUMBER: ................................

(of person authorised to sign on behalf of the Tenderer)    DATE: ......................................
**KEY PERSONNEL**

In terms of the Project Specification and the Conditions of Tender, unskilled workers may only be brought in from outside the local community if such personnel are not available locally.

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel which may have to be brought in from outside if not available locally.

<table>
<thead>
<tr>
<th>CATEGORY OF EMPLOYEE</th>
<th>NUMBER OF PERSONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KEY PERSONNEL, PART OF THE CONTRACTOR’S ORGANISATION</td>
</tr>
<tr>
<td></td>
<td>HDI</td>
</tr>
<tr>
<td>Site Agent, Project Managers, Project Designer</td>
<td></td>
</tr>
<tr>
<td>Foremen, Quality Control and Safety Personnel</td>
<td></td>
</tr>
<tr>
<td>Technicians, Surveyors, etc</td>
<td></td>
</tr>
<tr>
<td>Artisans and other Skilled workers</td>
<td></td>
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<tr>
<td>Plant Operators</td>
<td></td>
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<tr>
<td>Others:</td>
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</table>

The Tenderer shall attach hereto the *curricula vitae*, in the form included hereafter, of at least the site agent and the project manager. The information is necessary for evaluation of the tender.

**SIGNATURE:** ..........................................................  **IDENTITY NUMBER:** ..........................................................

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

*Page 5*
**CERTIFIED COPIES OF QUALIFICATIONS AND CURRICULUM VITAE OF KEY PERSONNEL**  
**(COMPULSORY)**

**CV FOR SITE AGENT**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date of birth:</th>
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</thead>
<tbody>
<tr>
<td>Profession:</td>
<td>Nationality:</td>
</tr>
<tr>
<td>Qualifications:</td>
<td></td>
</tr>
<tr>
<td>Professional Registration Number:</td>
<td></td>
</tr>
<tr>
<td>Name of Employer (firm):</td>
<td></td>
</tr>
<tr>
<td>Current position:</td>
<td>Years with firm:</td>
</tr>
</tbody>
</table>

**Employment Record:**

<table>
<thead>
<tr>
<th>Position</th>
<th>Date hired</th>
<th>Date resigned</th>
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**Experience Record Pertinent to Required service:**

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<tr>
<th>Experience</th>
<th>Dates</th>
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</tbody>
</table>

*Append a more detailed CV to tender submission if there is no sufficient space on template*

**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

**SIGNATURE:** …………………………………………………  **IDENTITY NUMBER:** …………………………………

*(of person authorised to sign on behalf of the Tenderer)  **DATE:**………………………………
# CV FOR CONSTRUCTION/PROJECT MANAGER

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date of birth:</th>
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</thead>
<tbody>
<tr>
<td>Profession:</td>
<td>Nationality:</td>
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<tr>
<td>Qualifications:</td>
<td></td>
</tr>
<tr>
<td>Professional Registration Number:</td>
<td></td>
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<tr>
<td>Name of Employer (firm):</td>
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<tr>
<td>Current position:</td>
<td>Years with firm:</td>
</tr>
</tbody>
</table>

## Employment Record:

*Append a more detailed CV to tender submission if there is no sufficient space on template*

## Experience Record Pertinent to Required service:

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## Certification:

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

**SIGNATURE: ..................................................**  **IDENTITY NUMBER: ..................................**

*(of person authorised to sign on behalf of the Tenderer)  **DATE:........................................**
## CV FOR PROJECT DESIGNER

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date of birth:</th>
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<tbody>
<tr>
<td>Profession:</td>
<td>Nationality:</td>
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<tr>
<td>Qualifications:</td>
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<tr>
<td>Professional Registration Number:</td>
<td></td>
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<tr>
<td>Name of Employer (firm):</td>
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<tr>
<td>Current position:</td>
<td>Years with firm:</td>
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</tbody>
</table>

### Employment Record:

<table>
<thead>
<tr>
<th>Date</th>
<th>Position</th>
<th>Company</th>
<th>Details</th>
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### Experience Record Pertinent to Required service:

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<tr>
<th>Date</th>
<th>Position</th>
<th>Company</th>
<th>Details</th>
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### Certification:

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

SIGNATURE: ............................................  IDENTITY NUMBER:  ............................................

(of person authorised to sign on behalf of the Tenderer)  DATE:  ............................................
**PRELIMINARY PROGRAMME**

The Tenderer shall detail below or attach a preliminary programme reflecting the proposed sequence and tempo of execution of the various activities comprising the work for this Contract. The programme shall be in accordance with the information supplied in the Contract, requirements of the Project Specifications and with all other aspects of his Tender.

<table>
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<tr>
<th>ACTIVITY</th>
<th>weeks</th>
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(Note: The program must be based on the completion time as specified in the Contract Data. No other completion time that may be indicated on this program will be regarded as an alternative offer, unless it is listed in Table (b) of Form I hereafter and supported by a detailed statement to that effect, all as specified in the Tender Data)

SIGNATURE: ..................................................  IDENTITY NUMBER: ........................................

(of person authorised to sign on behalf of the Tenderer)  DATE:........................................
AMENDMENTS, QUALIFICATIONS AND ALTERNATIVES

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

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

(a) AMENDMENTS

<table>
<thead>
<tr>
<th>PAGE, CLAUSE OR ITEM NO</th>
<th>PROPOSED AMENDMENT</th>
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[Notes: (1) Proposals for amendments to the General and Special Conditions of Contract are not acceptable, and will be ignored; (2) The Tenderer must give full details of all the financial implications of the amendments and qualifications in a covering letter attached to his tender.]

(b) ALTERNATIVES

<table>
<thead>
<tr>
<th>PROPOSED ALTERNATIVE</th>
<th>DESCRIPTION OF ALTERNATIVE</th>
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(Notes: (1) Individual alternative items that do not justify an alternative tender, and an alternative offer for time for completion should be listed here.

(2) In the case of a major alternative to any part of the work, a separate Bill of Quantities, program, etc, and a detailed statement setting out the salient features of the proposed alternatives must accompany the tender.

(3) Alternative tenders involving technical modifications to the design of the works and methods of construction shall be treated separately from the main tender offer.)

(c) DISCOUNTS

<table>
<thead>
<tr>
<th>ITEM ON WHICH DISCOUNT IS OFFERED</th>
<th>DESCRIPTION OF DISCOUNT OFFERED</th>
</tr>
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<tbody>
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</table>

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

SIGNATURE: ...........................................  IDENTITY NUMBER: ....................................

(of person authorised to sign on behalf of the Tenderer)  DATE:.................................
COPY OF REGISTRATION CERTIFICATE PERTAINING TO YOUR RELEVANT INDUSTRY
IDENTITY DOCUMENTS OF OWNERS/ DIRECTORS/ MEMBERS/SHAREHOLDERS
CONTRACTOR'S COPY OF REGISTRATION OF INCORPORATION

Attached hereto is a certified copy of my / our company registration of incorporation. My failure to submit the copy with my / our tender document will lead to the conclusion that I am / we are not registered as claimed.
CLOSE CORPORATION TO ATTACH AN ASSOCIATION AGREEMENT
SHAREHOLDERS’ AGREEMENTS / SHARE CERTIFICATES / MEMORANDUM OF ASSOCIATION FOR COMPANIES
TENDERER’S FINANCIAL STANDING

In terms of Clause F.2.18.1 of the Contract-specific Tender Data the Tenderer shall provide information about his commercial position, which includes information necessary for the Employer to evaluate the Tenderer’s financial standing.

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

Name of account holder : ........................................................................................................................................
Name of Bank: ........................................ Branch: .................................................................................................

(i) Account number: ........................................ Type of account: .................................................................

Telephone number: ........................................ Facsimile number: .................................................................
Name of contact person (at bank) ..........................................................................................................................
Certified copy or original Tenderer’s Financial Standing (Bank Rating)
VALID VAT CERTIFICATE (Where Applicable)
TAX CLEARANCE CERTIFICATE

IMPORTANT NOTES:

1. The following is an abstract from the Preferential Procurement Regulations 2001 promulgated with the Preferential Policy Framework Act No 5 of 2000:

"Tax clearance certificate

16. No contract may be awarded to a person who has failed to submit an original Tax Clearance Certificate from the South African Revenue Service ("SARS") certifying the taxes of that person to be in order or that suitable arrangements have been made with SARS."

2. The ST 5.1 form, Application for Tax Clearance Certificate (in respect of tenders), must be completed by the tenderer in every detail and submitted to the Receiver of Revenue where the tenderer is registered for income tax purposes. The Receiver of Revenue will then furnish the tenderer with a Tax Clearance Certificate that will be valid for 6 months from date of issue, unless otherwise indicated on the certificate issued by SARS. This Tax Clearance Certificate must be submitted in the original as an integral part of the tender.

   Each party to a Consortium / Joint Venture / Sub-contractors must complete a separate Tax Clearance Certificate.

   Failure to submit an original and valid Tax Clearance Certificate, will inevitably invalidate the tender.

3. An example of the Application for Tax Clearance Certificate which Tenderers may use to apply for the Tax Clearance Certificate is included hereafter and is available at any Receiver's Office.
TAX CLEARANCE CERTIFICATE

[Tax Clearance Certificate obtained from SARS to be inserted here]
COPY OF COIDA (Compensation for Occupational Injuries and Diseases) REGISTRATION CERTIFICATE, e.g. Letter of Good Standing
PROOF OF CIDB REGISTRATION

Attached hereto is my proof of CIDB grading/registration (Construction Industry Development Board).

NOTE: The CIDB can be contacted or visited on www.cidb.org.za for more information and registration. Obtain a “Code of Conduct for all parties engaged in construction procurement” for your information.
CONTRACTOR'S HEALTH AND SAFETY DECLARATION

In terms of Clause 4(4) of the OHSA 1993 Construction Regulations 2003 (referred to as “the Regulations” hereafter), a Contractor may only be appointed to perform construction work if the Employer is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the Occupational Health and Safety Act No 85 of 1993 and the OHSA 1993 Construction Regulations 2003.

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

Declaration by Tenderer

1. I the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and the OHSA 1993 Construction Regulations 2003.

2. I hereby declare that my company / enterprise has the competence and the necessary resources to safely carry out the construction work under this contract in compliance with the Construction Regulations and the Employer's Health and Safety Specifications.

3. I hereby undertake, if my tender is accepted, to provide a sufficiently documented Health and Safety Plan in accordance with Regulation 5(1) of the Construction Regulations, approved by the Employer or his representative, before I will be allowed to commence with construction work under the contract. I hereby agree that my company/enterprise will not have a claim for compensation for delay or extension of time because of my failure to obtain the necessary approval for the said safety plan.

4. I confirm that copies of my company's approved Health and Safety Plan, the Employer's Safety Specifications as well as the OHSA 1993 Construction Regulations 2003 will be provided on site and will at all times be available for inspection by the Contractor's personnel, the Employer's personnel, the Engineer, visitors, and officials and inspectors of the Department of Labour.

5. I hereby confirm that adequate provision has been made in my tendered rates and prices in the bill of quantities to cover the cost of all resources, actions, training and all health and safety measures envisaged in the OHSA 1993 Construction Regulations 2003, including the cost for specific items that may be scheduled in the bill of quantities.

6. I hereby confirm that I will be liable for any penalties that may be applied by the Employer in terms of the said Regulations for failure on my part to comply with the provisions of the Act and the Regulations as set out in Regulation 30 of the Regulations.

7. I agree that my failure to complete and execute this declaration to the satisfaction of the Employer will mean that I am unable to comply with the requirements of the OHSA 1993 Construction Regulations 2003, and accept that my tender will be prejudiced and may be rejected at the discretion of the Employer.

8. I am aware of the fact that, should I be awarded the contract, I must submit the notification required in terms of Regulation 3 of the OHSA 1993 Construction Regulations 2003 (example attached hereafter) before I will be allowed to proceed with any work under the contract.

SIGNATURE: ..................................................  IDENTITY NUMBER: ....................................
(of person authorised to sign on behalf of the Tenderer)  DATE:...........................................
PRO FORMA NOTIFICATION FORM IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993, CONSTRUCTION REGULATIONS 2003

[In terms of Regulation 3 of the Construction Regulations 2003, the successful Tenderer must complete and forward this form prior to commencement of work to the office of the Department of Labour.]

1. (a) Name and postal address of Contractor: .................................................................
    (b) Name of Contractor’s contact person: .................................................................
        Telephone number: ..............................................................................................

2. Contractor’s compensation registration number: ...............................................................

3. (a) Name and postal address of client: ...........................................................................
    (b) Name of client’s contact person or agent: ...............................................................
        Telephone number: ..............................................................................................

4. (a) Name and postal address of designer(s) for the project: ...........................................
    (b) Name of designer’s contact person: ......................................................................
        Telephone number: ..............................................................................................

5. Name of Contractor’s construction supervisor on site appointed in terms of Regulation 6(1): ...............................................................

6. Name/s of Contractor’s sub-ordinate supervisors on site appointed in terms of regulation 6(2).

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

8. Nature of the construction work: ..................................................................................

9. Expected commencement date: ..................................................................................

10. Expected completion date: .........................................................................................

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

12. Planned number of subcontractors on the construction site accountable to Contractor: ....

13. Name(s) of subcontractors already chosen: ................................................................

SIGNED BY:
  CONTRACTOR: ................................................................. DATE: ........................................

IDENTITY NUMBER: ..........................................................

CLIENT: ................................................................. DATE: ........................................
FORM A15: DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state¹, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes a price quotation, advertised competitive bid, limited bid or proposal). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

- the bidder is employed by the state; and/or
- the legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

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

2.1 Full Name of bidder or his or her representative: .............................................

2.2 Identity Number: ..............................................................................................................

2.3 Position occupied in the Company (director, trustee, shareholder²)...........................

2.4 Company Registration Number: ......................................................................................

2.5 Tax Reference Number: ................................................................................................

2.6 VAT Registration Number: ............................................................................................

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / persal numbers must be indicated in paragraph 3 below.

¹“State” means –
(a) 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);
(b) any municipality or municipal entity;
(c) provincial legislature;
(d) national Assembly or the national Council of provinces; or
(e) Parliament.
²“Shareholder” means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

2.7 Are you or any person connected with the bidder presently employed by the state? YES / NO
2.7.1 If so, furnish the following particulars:

Name of person / director / trustee / shareholder / member:
…………………………………………………
Name of state institution at which you or the person connected to the bidder is employed:
…………………………………………………
Position occupied in the state institution:
…………………………………………………
Any other particulars:
………………………………………………………………
………………………………………………………………
………………………………………………………………

2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? YES / NO

2.7.2.1 If yes, did you attached proof of such authority to the bid document? YES / NO

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the bid.

2.7.2.2 If no, furnish reasons for non-submission of such proof:
………………………………………………………………
………………………………………………………………
………………………………………………………………

2.8 Did you or your spouse, or any of the company’s directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? YES / NO

2.8.1 If so, furnish particulars:
………………………………………………………………
………………………………………………………………
………………………………………………………………

2.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? YES / NO

2.9.1 If so, furnish particulars.
………………………………………………………………
………………………………………………………………
………………………………………………………………
2.10 Are you, or any person connected with the bidder, aware of any relationship (family, friend, other) between any other bidder and any person employed by the state who may be involved with the evaluation and or adjudication of this bid? YES/NO

2.10.1 If so, furnish particulars.

………………………………………………………………
………………………………………………………………
………………………………………………………………

2.11 Do you or any of the directors / trustees / shareholders / members of the company have any interest in any other related companies whether or not they are bidding for this contract? YES/NO

2.11.1 If so, furnish particulars:

………………………………………………………………
………………………………………………………………
………………………………………………………………

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

<table>
<thead>
<tr>
<th>Full Name</th>
<th>Identity Number</th>
<th>Personal Tax Reference Number</th>
<th>State Employee Number / Persal Number</th>
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</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>
4 DECLARATION

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

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 23 OF THE GENERAL CONDITIONS OF CONTRACT SHOULD THIS DECLARATION PROVE TO BE FALSE.

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

........................................... ..................................................
Position Name of bidder
PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

SBD 6.1

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


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

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:

<table>
<thead>
<tr>
<th></th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE</td>
<td>80</td>
</tr>
<tr>
<td>B-BBEE STATUS LEVEL OF CONTRIBUTOR</td>
<td>20</td>
</tr>
<tr>
<td>Total points for Price and B-BBEE must not exceed</td>
<td>100</td>
</tr>
</tbody>
</table>

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.

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) Status level certificate issued by an authorized body or person; B-BBEE
   2) affidavit as prescribed by the B-BBEE Codes of Good Practice; A sworn
   3) requirement prescribed in terms of the B-BBEE Act; Any other

(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. **ADJUDICATION USING A POINT SYSTEM**

3.1 The bidder obtaining the highest number of total points will be awarded the contract.

3.2 Preference points shall be calculated after prices have been brought to a comparative basis considering all factors of non-firm prices and all unconditional discounts.

3.3 Points scored must be rounded off to the nearest 2 decimal places.

3.4 If two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.

3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.
3.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

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

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

\[
\begin{align*}
P_s &= 80 \left( 1 - \frac{P_t - P_{\text{min}}}{P_{\text{min}}} \right) \quad \text{or} \\
P_s &= 90 \left( 1 - \frac{P_t - P_{\text{min}}}{P_{\text{min}}} \right)
\end{align*}
\]

Where

\[
\begin{align*}
P_s &= \text{Points scored for price of bid under consideration} \\
P_t &= \text{Price of bid under consideration} \\
P_{\text{min}} &= \text{Price of lowest acceptable bid}
\end{align*}
\]

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

5.1 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:

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

5.2 Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA’s approval for conducting verification and issuing EMEs with B-BBEE Status Level Certificates.
5.3 Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, if the entity submits their B-BBEE status level certificate.

5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, if the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.

5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

5.8 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. BID DECLARATION

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

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

7.1 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.

8. SUB-CONTRACTING

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

(Tick applicable box)

YES  NO

8.1.1 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:

<table>
<thead>
<tr>
<th>Designated Group: An EME or QSE which is at last 51% owned by:</th>
<th>EME</th>
<th>QSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black people who are youth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black people who are women</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black people with disabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black people living in rural or underdeveloped areas or townships</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative owned by black people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black people who are military veterans</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OR

<table>
<thead>
<tr>
<th>Designated Group: An EME or QSE which is at last 51% owned by:</th>
<th>EME</th>
<th>QSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any EME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any QSE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of company/firm:..............................................................................................

9.2 VAT registration number:..........................................................................................

9.3 Company registration number:.....................................................................................

9.4 TYPE OF COMPANY/ FIRM

[ ] Partnership/Joint Venture / Consortium

[ ] One person business/sole propriety

[ ] Close corporation

[ ] Company

[ ] (Pty) Limited

[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

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

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

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

9.6 COMPANY CLASSIFICATION

[ ] Manufacturer

[ ] Supplier
9.7 Total number of years the company/firm has been in business: ........................................

9.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BEE 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 .....................................
........................................
........................................
DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

SBD 6.2

This Standard Bidding Document (SBD) 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:

\[
LC = [1 - \frac{x}{y}] \times 100
\]

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.

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:

<table>
<thead>
<tr>
<th>Description of services, works or goods</th>
<th>Stipulated minimum threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>___________ _______%</td>
</tr>
<tr>
<td></td>
<td>___________ _______%</td>
</tr>
<tr>
<td></td>
<td>___________ _______%</td>
</tr>
</tbody>
</table>

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):

<table>
<thead>
<tr>
<th>Currency</th>
<th>Rates of exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Dollar</td>
<td></td>
</tr>
<tr>
<td>Pound Sterling</td>
<td></td>
</tr>
<tr>
<td>Euro</td>
<td></td>
</tr>
<tr>
<td>Yen</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

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.
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:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bid price, excluding VAT (y)</td>
<td>R</td>
</tr>
<tr>
<td>Imported content (x), as calculated in terms of SATS 1286:2011</td>
<td>R</td>
</tr>
<tr>
<td>Stipulated minimum threshold for local content (paragraph 3 above)</td>
<td></td>
</tr>
<tr>
<td>Local content %, as calculated in terms of SATS 1286:2011</td>
<td></td>
</tr>
</tbody>
</table>

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.

(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: ____________
DECLARATION OF BIDDER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Standard Bidding Document must form part of all bids invited.

2. It serves as a declaration to be used by institutions 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 disregarded if that bidder, or any of its directors have:
   a. abused the institution’s supply chain management system;
   b. committed fraud or any other improper conduct in relation to such system; or
   c. failed to perform on any previous contract.

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>
| 4.1  | Is the bidder or any of its directors listed on the National Treasury’s Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?  
(Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the audi alteram partem rule was applied).  
The Database of Restricted Suppliers now resides on the National Treasury’s website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page. | Yes | No  |
| 4.1.1| If so, furnish particulars:                                                                                                                |     |     |
| 4.2  | Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)?  
The Register for Tender Defaulters can be accessed on the National Treasury’s website (www.treasury.gov.za) by clicking on its link at the bottom of the home page. | Yes | No  |
<p>| 4.2.1| If so, furnish particulars:                                                                                                                |     |     |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.3</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>4.3.1</strong></td>
<td>If so, furnish particulars:</td>
</tr>
<tr>
<td><strong>4.4</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>4.4.1</strong></td>
<td>If so, furnish particulars:</td>
</tr>
</tbody>
</table>

**CERTIFICATION**

I, THE UNDERSIGNED (FULL NAME)………………………………………………………………

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS 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
CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Standard Bidding Document (SBD) 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. Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
   a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution’s supply chain management system and or committed fraud or any other improper conduct in relation to such system.
   b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.

4. This SBD 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 (SBD 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.
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 Institution)
do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of:________________________________________________________that:
(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word “competitor” shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
   (a) has been requested to submit a bid in response to this bid invitation;
   (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
   (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder;
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium will not be construed as collusive bidding.

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.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
   (a) prices;
   (b) geographical area where product or service will be rendered (market allocation);
   (c) methods, factors or formulas used to calculate prices;
   (d) the intention or decision to submit or not to submit a bid;
   (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
   (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

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

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

-------------------------------------     -------------------------------------
Signature                                    Date

-------------------------------------     -------------------------------------
Position                                    Name of Bidder
Js914w 2
## DECLARATION

I, THE UNDERSIGNED *(name)* …………………………………………………………………………………………… hereby certify that the information furnished in paragraphs 2.1 to 2.3.1 above is correct.

I accept that the Mpumalanga Provincial Government as representative of the Government of the Republic of South Africa may act against me should this declaration prove to be false.

**Signature:** ……………………………………… **Date:** ………………………………………

**Identity number:** ………………………………………………………………………

**Position:**…………………………………… **Name of Tenderer:** ……………………………………………………………

### Tick sheet of returnable schedules:

<table>
<thead>
<tr>
<th>Item</th>
<th>Tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified copy or original B-BBEE certificate</td>
<td></td>
</tr>
<tr>
<td>Record of Addenda to Tender Documents</td>
<td></td>
</tr>
<tr>
<td>Certificate of Attendance of Site Inspection</td>
<td></td>
</tr>
<tr>
<td>Compulsory Enterprise Questionnaire</td>
<td></td>
</tr>
<tr>
<td>Certificate of Authority for Signature</td>
<td></td>
</tr>
<tr>
<td>Schedule of Tenderer’s Trade References</td>
<td></td>
</tr>
<tr>
<td>Schedule of Tenderer’s Experience</td>
<td></td>
</tr>
<tr>
<td>Key Personnel</td>
<td></td>
</tr>
<tr>
<td>Preliminary Programme</td>
<td></td>
</tr>
<tr>
<td>Proposed Amendments and Qualifications</td>
<td></td>
</tr>
<tr>
<td>Joint Venture Agreement</td>
<td></td>
</tr>
<tr>
<td>Certified copy of contractor Registration for Incorporation or of Company Registration Document</td>
<td></td>
</tr>
<tr>
<td>Tenderer’s Bank rating</td>
<td></td>
</tr>
<tr>
<td>An original valid Tax Clearance Certificate issued by the South African Revenue Services</td>
<td></td>
</tr>
<tr>
<td>Copy of COIDA (Compensation for Occupational Injuries and Diseases) registration certificate, e.g. Letter of Good Standing</td>
<td></td>
</tr>
<tr>
<td>Proof of CIDB registration</td>
<td></td>
</tr>
<tr>
<td>Contractor’s Health and Safety Declaration</td>
<td></td>
</tr>
<tr>
<td>Declaration of Interest <em>(SBD 4)</em></td>
<td></td>
</tr>
<tr>
<td>Preference Points Claim form in terms of the Preferential Procurement Regulation <em>(SBD 6.1)</em></td>
<td></td>
</tr>
<tr>
<td>Declaration Certificate for Local Production and Content for Designated Sectors <em>(SBD 6.2)</em></td>
<td></td>
</tr>
<tr>
<td>Declaration of Bidders Past Supply Chain Management practices <em>(SBD 8)</em></td>
<td></td>
</tr>
<tr>
<td>Certificate of Independent bid Determination <em>(SBD 9)</em></td>
<td></td>
</tr>
</tbody>
</table>
**PREFERENCING SCHEDULE (DIRECT PREFERENCE)**

1 **Definitions**

The following definitions shall apply to this schedule:

**Disabled**: in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being.

**Equity ownership**: The percentage of an enterprise or business owned by individuals or, in respect of a company, the percentage of the company’s shares that are owned by individuals, who are actively involved in the management of an enterprise or business and exercise control over the enterprise, commensurate with their degree of ownership at the closing date of the tender.

**Managed**: the possession and exercise of legal authority and power to manage the assets, goodwill and daily operations of a business and the active and continuous exercise of appropriate managerial and financial authority and power in determining the policies and directing the operations of the business.

**Owner**: A person who has all the customary incidents of ownership, including the right of disposition, and sharing in all the risks and profits commensurate with the degree of ownership interest as demonstrated by an examination of the substance, rather than the form of ownership arrangements.

**Youth**: A South African citizen who is between the ages of 18 and 35 at the time that tenders close.

**CRDP**: The tenderer will be expected to source not less than 40% of labour and materials locally in order to empower local community

2 **Conditions associated with the granting of preferences**

The tenderer who claims a preference, undertakes to:

1) not subcontract more than 25% of the contract price, unless such contracting is undertaken in terms of a preference claimed;
2) accept the sanctions set out in Section 3 below should conditions 1 or 2 be breached;
3) complete sections 4 to 7 below as relevant;
4) enter into written subcontract agreements in accordance with the provisions of the Construction Industry Development Board’s Best Practice Guideline D1: Subcontracting Arrangements; and
5) complete the Declaration with regard to Equity Ownership contained in section 5 below.
6) provide proof of registration for regional levies if a preference is claimed for being registered in the Mpumalanga Province.
3 Sanctions relating to breaches of preferencing conditions

The sanctions for breaching the preferencing conditions are:
1) termination of the Contract; or
2) a financial penalty payable to the Employer equal to 1.25 times the number of tender evaluation points awarded in respect of the preference claimed, multiplied by the Contract Price exclusive of VAT, divided by 100.

4 A maximum equal to 10 tender evaluation points will be awarded based on B-BBEE Status Level of Contributor

<table>
<thead>
<tr>
<th>B-BBEE STATUS LEVEL OF CONTRIBUTOR</th>
<th>NUMBER OF POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>NON-COMPLIANT CONTRIBUTOR</td>
<td>0</td>
</tr>
</tbody>
</table>
4.1 For projects up to a value of R50 000 000.00, 80/20 points are allocated as follows:

- 80 points – Price
- 20 points – Direct preference B-BBEE Status level
- 100 points – Functionality
  - 40 points – Experience on similar scale project
  - 35 points – Qualifications and Competence of key staff
  - 25 points – Financial Performance

5 Tender preferences claimed

I/we apply on behalf of my/our firm for the following preference:

6 Declaration with regard to equity ownership

6.1 How long has the Company been in existence? ........................................

6.2 Describe principal business activities:

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

6.3 List all shareholders by name, identity number, citizenship, status, ownership, as relevant

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>ID number</th>
<th>Date RSA Citizenship obtained</th>
<th>Percentage owned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Woman</td>
<td>Black person</td>
<td>Youth</td>
<td>Disability</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.4 In the case of a person with a disability:

<table>
<thead>
<tr>
<th>Name</th>
<th>Describe what the permanent impairment is.</th>
<th>Outline how the permanent impairment impacts on ability to perform an activity in the manner or within the ranges considered normal for a human being?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the firm or sole proprietor confirms that he / she understands the conditions under which such preferences are granted and confirms that the tenderer satisfies the conditions pertaining to the granting of tender preferences.

Signature : ________________________________________________________________

Name : ________________________________________________________________

Identity number : _________________________________________________________

Duly authorised to sign on behalf of : __________________________________________

Telephone : _____________________________________________________________

Fax : _________________________________________________________________

Date : _________________________________________________________________
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:

The construction of the above-mentioned work at Cape Town International Airport

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

By the representative of the tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the tenderer offers to perform all of the obligations and liabilities of the contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

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

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

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Signature ............................................. Date .................................
Name ............................................. Identity number .................
Capacity ............................................... for the tenderer
(Name and address of organization) .................................

Name and signature of witness .................................

NOTE: Failure of a tenderer to sign this part of the tender form (offer) will invalidate the tender
Acceptance

By signing this part of this form of offer and acceptance, the employer identified below accepts the tenderer’s offer. In consideration thereof, the employer shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer’s offer shall form an agreement between the employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

- Part C1: 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 1 to 4 above.

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

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

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now 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 .......................... Date ........................
Name .......................... Identity number ..........................
Capacity ..........................

for the Employer   Airports Company South Africa (SOC) Ltd. Cape Town International Airport

Name and signature of witness ..........................

Date ..........................
### Schedule of Deviations

1 Subject

Details

2 Subject

Details

3 Subject

Details

4 Subject

Details

5 Subject

Details

By the duly authorised representatives signing this agreement, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.
It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.
C1.2 Contract Data


Copies of these conditions of contract may be obtained from the Association of South African Quantity Surveyors (011-3154140), Master Builders Association (011-205-9000; 057-3526269) South African Association of Consulting Engineers (011-4632022) or South African Institute of Architects (051-4474909; 011-4860684; 053-8312003;)

The JBCC Principal Building Agreement makes several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the JBCC Principal Building Agreement.

Each item of data given below is cross-referenced to the clause in the JBCC Principal Building Agreement to which it mainly applies.

The additions, deletions and alterations to the JBCC Principal Agreement are:

<table>
<thead>
<tr>
<th>Clause</th>
<th>Additions, deletions and alterations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Replace the following definitions in DEFINITIONS AND INTERPRETATIONS with the following wording: AGREEMENT means the agreement arising from the signing of the Form of Offer and Acceptance by the parties. BILLS OF QUANTITIES means the document drawn up in accordance with the Pricing Instructions contained in the Pricing Data. CONSTRUCTION PERIOD means the period commencing on the date of site hand over and ending on the date of practical completion. CONTRACT DOCUMENTS means the Agreement and all documents referenced therein. CONTRACT DRAWINGS means the drawings listed in the Scope of Work. CONTRACT SUM means the total of prices in the Form of Offer and Acceptance. SCHEDULE means the variables listed in the Contract Data.</td>
</tr>
<tr>
<td>1.6.4</td>
<td>Delete sub-clause 1.6.4</td>
</tr>
<tr>
<td>3.5</td>
<td>Delete sub-clause 3.5</td>
</tr>
<tr>
<td>3.6</td>
<td>Delete sub-clause 3.6.</td>
</tr>
<tr>
<td>3.9</td>
<td>Delete sub-clause 3.9</td>
</tr>
<tr>
<td>3.10</td>
<td>Delete sub-clause 3.10</td>
</tr>
</tbody>
</table>
15.1.1 Delete sub-clause 15.1.1

21 Replace sub-clauses 21.1.2 to 21.1.4 and 21.2 to 21.6 with the following:

The contractor and principal agent shall appoint a selected subcontractor in accordance with the provisions of the Scope of Work.

30.1 Replace reference to 36.3 at end of sentence with 36.0

31.12 Delete “Payment shall be subject to the employer giving the contractor a tax invoice for the amount due.”

32.12 Delete sub-clause

34.13 Delete the words in sub-clause 34.13 “subject to the employer giving the contractor a tax invoice for the amount due

40.0 Delete in the Substitute Provisions (41.0 State Clauses) clause 40.2.1, 40.2.2 and 40.3/4/5/6 and replace with the following:

40.1# Should any dispute between the employer, his agents or principal agent on the one hand and the contractor on the other arise out of this agreement, such dispute shall be referred to adjudication.

40.2# Adjudication shall be conducted in accordance with the edition of the JBCC Rules for Adjudication current at the time when the dispute is declared. The party, which raises the dispute, shall select three adjudicators from the panel of adjudicators published by the South African Institution of Civil Engineering or Association of Arbitrators (Southern Africa), determine their hourly fees and confirm that these adjudicators are available to adjudicate the dispute in question. The other party shall then select within 7 days one of the three nominated adjudicators, failing which the chairman for the time being of the Association of Arbitrators (Southern Africa) shall nominate an adjudicator. The adjudicator shall be appointed in terms of the Adjudicators Agreement set out in C1.4.

40.3# If provided in the schedule, a dispute shall be finally settled by a single Arbitrator to be agreed on between the parties or, failing such agreement within 28 days after referring the dispute to Arbitration, an Arbitrator nominated by the chairman for the time being of the Association of Arbitrators (Southern Africa). Any such reference shall be deemed to be a submission to the arbitration of a single arbitrator in terms of the Arbitration Act (Act No 42 of 1965, as amended), or any legislation passed in substitution therefore. In the absence of any other agreed procedure, the arbitration shall take place in accordance with the Rules for the Conduct of Arbitrations issued by the Association of Arbitrators (Southern Africa) which are current at the time of the referral to arbitration. The Arbitrator shall, in his award, set out the facts and the provisions of the contract on which his award is based.
40.4# If the **schedule** provides for court proceedings to finally resolve disputes, disputes shall be determined by court proceedings.

12.1 Delete 12.1 in the Substitute Provisions (41.0 State Clauses) so that the provisions of 12.1 apply to the **state** and replace “**contractor**” in clause 10.1 in the Substitute Provisions (41.0 State Clauses) with “The party responsible in terms of 12.1”

12.2 Amend the first part of the first sentence in clause 12.2 of the Substitute Provisions (41.0 State Clauses) to read “Where the **contractor** is responsible for insurances, the **contractor** shall ..........”

11.1 Delete clause 11.1 in the Substitute Provisions (41.0 State Clauses) so that the provisions of 11.1 apply to the **state**.

41.0 Delete the definitions for **CONSTRUCTION PERIOD** and **INTEREST** in clause 41.1.3 in the substitute provisions (Clause 41.0 State Clauses)

41.0 Delete in the **state** clauses sub-clauses 31.11.1 and 31.11.2. Sub-clause 31.11.1 of the non-**state** clauses will apply to the **contract**

41.0 Delete in the **state** sub-clause 10.3. Sub-clause 10.3 of the non-**state** clauses will apply to the **contract**

41.0 Add sub-clause 32.15 and 34.3 to 5.1.2

41.0 Add in the following clause to 41.0

Notwithstanding any clause to the contrary, on cancellation of this agreement either by the **employer** or the **contractor**, or for any reason whatsoever, the **contractor** shall on written instruction, discontinue with the **works** on a stated date and withdraw himself from the **site**. The contractor shall not be entitled to refuse to withdraw from the **works** on the grounds of any lien or right of retention or on the grounds of any other right whatsoever.
Part 1: Contract Data Completed by the Employer

Item and data

The Employer is the Airports Company South Africa (SOC) Ltd. Airports

The address of the Employer is: Cape Town International Airport
Email: Andrew.mufema@airports.co.za

The Works comprise the Demolition, design and reconstruction of the Bid Air and Menzies building (Refer document C3 – Scope of Works)

The Works or installations to be undertaken by direct contractors comprises NONE

The Employer is an organ of State

- The interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999) will apply.
- Lateral support insurance is / not to be effected by the contractor
- Payment will be made for materials and goods
- Extended defects liability period will apply to the following elements: NOT APPLICABLE

Possession of the site is to be given on the date in the schedule providing the employer with construction guarantees in accordance with the provisions of 14.0. N/A

The period for the commencement of the works after the contractor takes possession of the site is ten (10) working days.

For the works as a whole:
The date for practical completion is 6 months after contractual commencement date
The penalty per calendar day is 0,05% of the tendered amount, inclusive of value added tax

The law applicable to the agreement shall be that of the Republic of South Africa.

Contract insurance is to be effected by the contractor.
Contract works insurance is to be effected by the contractor for a sum not less than the contract sum with a deductible in an amount that the Principal Agent deems appropriate.

The supplementary insurance is required. Such insurance shall comprise a Coupon Policy
for Special Risks issued by the South African Special Risk Insurance Association.

Public liability insurance to be effected by the contractor for the sum of R5 000,000.00 with a deductible in an amount that the Principal Agent deems appropriate.

Support insurance to be effected by the contractor for the sum of NOT APPLICABLE with a deductible in an amount that the Principal Agent deems appropriate.

A waiver of the contractor’s lien or right of continuing possession is not required.

Three copies of the construction document are to be supplied to the contractor free of charge.

JBCC Engineering General Conditions are not to be included in the contract document.

There is no latest day of the month for the issue of an interim payment certificate.

The employer will not provide advanced payments against an advanced payment guarantee.

**A 10% construction guarantee is required.**
Dispute resolution shall be by adjudication 
or 
Dispute determinations shall be by arbitration

The contract amount is not to be adjusted (CPAP not applicable). Tenders are strongly advised to allow for price escalation in their rate build up.
**Part 2: Contract Data completed by the Contractor**

<table>
<thead>
<tr>
<th>Clause</th>
<th>Item and data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>The name of the Contractor is. ..........................</td>
</tr>
<tr>
<td></td>
<td>The address of the contractor is:</td>
</tr>
<tr>
<td></td>
<td>Telephone: .........................</td>
</tr>
<tr>
<td></td>
<td>Facsimile: ..........................</td>
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<tr>
<td></td>
<td>Address (physical): ..................</td>
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<td>Address (postal): ..................</td>
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<td>..................................</td>
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</tbody>
</table>
DEMOLITION, DESIGN AND RECONSTRUCTION OF THE OLD BID AIR AND MENZIES BUILDING AT CAPE TOWN INTERNATIONAL AIRPORT

C1.3 Construction Guarantee

GUARANTOR DETAILS AND DEFINITIONS

Guarantor means ........................................................................................................................................

Physical address .....................................................................................................................................

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

Guarantor’s signatory 1 ................................................ Capacity ..........................................................

Guarantor’s signatory 1 ................................................ Capacity ..........................................................

Employer means Airports Company South Africa (SOC) Ltd.

Contractor means ..................................................................................................................................

Works means Demolition, design and reconstruction of old Bidair and Menzies Warehouse building

Site means Cape Town International Airport

Agreement means the JBCC Series 2000 Principal Agreement

Contract Sum i.e. the total of prices in the Form of Offer and Acceptance inclusive of VAT

Amount in figures R ..............................................

Amount in words ................................................................. (Rand)

Guaranteed Sum means the maximum aggregate amount of R .........................................................

Amount in words ................................................................. (Rand)
1 The Guarantor’s liability shall be limited to the amount of the Guaranteed Sum as follows:

<table>
<thead>
<tr>
<th>GUARANTOR’S LIABILITY</th>
<th>PERIOD OF LIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Guaranteed Sum (not exceeding 10 % of the contract sum) in the amount of:</td>
<td>From and including the date of issue of this Construction Guarantee and up to and including the date of the only practical completion certificate or the last practical completion certificate where there are sections, upon which this Construction Guarantee shall expire.</td>
</tr>
</tbody>
</table>

2 The Guarantor hereby acknowledges that:

2.1 Any reference in this Guarantee to the Agreement is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a surety ship.

2.2 Its obligation under this Guarantee is restricted to the payment of money.

3 Subject to the Guarantor’s maximum liability referred to in clauses 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in sub-clauses 3.1 to 3.3:

3.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Principal Agent in an interim or final payment certificate has not been made in terms of the Agreement and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of sub-clause 3.2.

3.2 A first written demand issued by the Employer to the Guarantor at the Guarantor’s physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of sub-clause 4.1 and that the sum certified has still not been paid therefore the Employer calls up this Guarantee and demands payment of the sum certified from the Guarantor.

3.3 A copy of the said payment certificate which entitles the Employer to receive payment in terms of the Agreement of the sum certified in clause 3.

4 Subject to the Guarantor’s maximum liability referred to in clause 1, the Guarantor undertakes to pay the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor’s physical address calling up this Guarantee stating that:
4.1 The Agreement has been cancelled due to the Contractor's default and that the Guarantee is called up in terms of clause 4. The demand shall enclose a copy of the notice of cancellation; or

4.2 A provisional sequestration or liquidation court order has been granted against the Contractor and that the Guarantee is called up in terms of clause 4. The demand shall enclose a copy of the court order.

5 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of clauses 3 and 4 shall not exceed the Guarantor's maximum liability in terms of clause 1.

6 Where the Guarantor is a registered insurer and has made payment in terms of clause 4, the Employer shall upon the date of issue of the final payment certificate submit an expense account to the Guarantor showing how all monies received in terms of the Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

7 Payment by the Guarantor in terms of clause 3 or 4 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner, which the Employer deems, fit and the Guarantor shall not have the right to claim his release from this Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

9 The Guarantor chooses the physical address as stated above for all purposes in connection herewith.

10 This Guarantee is neither negotiable nor transferable and shall expire in terms of clause 1, or payment in full of the Guaranteed Sum or on the Guarantee expiry date, whichever is the earlier, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

11 This Guarantee, with the required demand notices in terms of clauses 3 or 4, shall be regarded as a liquid document for the purpose of obtaining a court order.

12 Where this Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.
Signed at ........................................ Date ........................................

Guarantor’s
Signatory 1 ........................................ Guarantor’s
Signatory 2 ........................................

Identity number ........................................ Identity number ........................................

Witness 1 ........................................ Witness 2 ........................................

Guarantor’s seal or stamp
DEMOLITION, DESIGN AND RECONSTRUCTION OF THE OLD BID AIR AND MENZIES BUILDING AT CAPE TOWN INTERNATIONAL AIRPORT

ADJUDICATOR’S AGREEMENT

This agreement is made on the . . . . . . . . day of . . . . . . . . between:

.......................................................................................... (name of company / organisation)
of ..........................................................................................
.......................................................................................... (address) and

.......................................................................................... (name of company / organisation)
of ..........................................................................................
.......................................................................................... (address)

(the Parties) and

.......................................................................................... (name)
of ..........................................................................................
.......................................................................................... (address)

(the Adjudicator).

Disputes or differences may arise/have arisen* between the Parties under a Contract dated . . . . . .
and known as. ...................................................................................................
and these disputes or differences shall be/have been* referred to adjudication in accordance with the
JBCC 2000 Adjudication Rules, (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 JBCC 2000
Adjudication Rules.
2. The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in
accordance with the JBCC 2000 Adjudication Rules.
3. The Parties bind themselves jointly and severally to pay the Adjudicator’s fees and expenses 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: SIGNED by: SIGNED by:

Name: ___________ Name: ___________ Name: ___________
ID: ___________ ID: ___________ ID: ___________
who warrants that he / she is duly authorized to sign for and on behalf of the first Party in the presence of

Witness: ___________ Witness: ___________ Witness: ___________
Name: ___________ Name: ___________ Name: ___________
Address: ___________ Address: ___________ Address: ___________
Date: ___________ Date: ___________ Date: ___________

Contract Data

1 The Adjudicator shall be paid at the hourly rate of R__________ in respect of all time spent upon, or in connection with, the adjudication including time spent traveling.

2 The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restricted to:
   (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs.
   (b) Telegrams, telex, faxes, and telephone calls.
   (c) Postage and similar delivery charges.
   (d) Traveling, hotel expenses and other similar disbursements.
   (e) Room charges.
   (f) Charges for legal or technical advice obtained in accordance with the Procedure.

3 The Adjudicator shall be paid an appointment fee of R__________ This fee shall become
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4</strong></td>
<td>The Adjudicator is/is not* currently registered for VAT.</td>
</tr>
<tr>
<td><strong>5</strong></td>
<td>Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice.</td>
</tr>
<tr>
<td><strong>6</strong></td>
<td>All payments, other than the appointment fee (item 3) shall become due 7 days after receipt of invoice, thereafter interest shall be payable at 5% per annum above the Reserve Bank base rate for every day the amount remains outstanding.</td>
</tr>
</tbody>
</table>

Payable in equal amounts by each Party within 14 days of the appointment of the Adjudicator, subject to an Invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties.
C2.1 Pricing Instructions

1. The Bills of Quantities have been drawn up in accordance with the Standard System of Measuring Building Work (as amended) published and issued by the Association of South African Quantity Surveyors (Sixth Edition (Revised)), 1999. Where applicable the:
   
a) civil engineering work has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardised Specifications for Civil Engineering Works.

b) mechanical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Refrigeration, Air-Conditioning and Ventilation Installations, published by the South African Association of Quantity Surveyors, July 1990).

c) electrical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Electrical Work, published by the South African Association of Quantity Surveyors, (July 2005).

2. The agreement is based on the JBCC Series 2000 Principal Building Agreement, prepared by the Joint Building Contracts Committee, Edition 4.1, March 2005. The additions, deletions and alterations to the JBCC Principal Building Agreement as well as the contract specific variables are as stated in the Contract Data. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.

3. Preliminary and general requirements are based on the various parts of SANS 1921, Construction and management requirements for works contracts. The additions, deletions and alterations to the various parts of SANS 1921 as well as the contract specific variables are as stated in the Specification Data in the Scope of Work. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.

4. It will be assumed that prices included in the Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards).

5. The drawings listed in the Scope of Works used for the setting up these Bills of Quantities are kept by the quantity surveyor and can be viewed at any time during office hours up until the completion of the works.

6. Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted.
7 Where any item is not relevant to this specific contract, such item is marked N/A (signifying “not applicable”)

8 The Contract Data and the standard form of contract referenced therein must be studied for the full extent and meaning of each and every clause set out in Section 1 (Preliminary and General) of the Bills of Quantities.

9 The Bills of Quantities is not intended for the ordering of materials. Any ordering of materials, based on the Bills of Quantities, is at the Contractor’s risk.

10 The amount of the Preliminary and General Section to be included in each monthly payment certificate shall be assessed as an amount prorated to the value of the work duly executed in the same ratio as the preliminaries bears to the total of prices excluding any contingency sum, the amount for the Preliminary and General Section and any amount in respect of contract price adjustment provided for in the contract.

11 Where the initial contract period is extended, the monthly charge shall be calculated on the basis as set out in 10 but taking into account the revised period for completing the works.

12 The amount or items of the Preliminary and General Section shall be adjusted to take account of the theoretical financial effect which changes in time or value (or both) have on this section. Such adjustments shall be based on adjustments in the following categories as recorded in the Bills of Quantities:

   a) an amount which is not to be varied, namely Fixed (F)
   b) an amount which is to be varied in proportion to the contract value, namely Value Related (V); and
   c) an amount which is to be varied in proportion to the contract period as compared to the initial construction period excluding revisions to the construction period for which no adjustment to the contractor is not entitled in terms of the contract, namely Time Related (T).

13 Where no provision is made in the Bills of Quantities to indicate which of the three categories in 12 apply or where no selection is made, the adjustments shall be based on the following breakdown:

   a) 10 percent is Fixed;
   b) 15 percent if Value Related
   c) 75 percent is Time Related.

14 The adjustment of the Preliminary and General Section shall apply notwithstanding the actual employment of resources in the execution of the works. The contract value used for the adjustment of the Preliminary and General Section shall exclude any contingency sum, the amount for the Preliminary and General Section and any amount in respect of contract price adjustment provided for in the contract. Adjustments in respect of any staged or sectional completion shall be prorated to the value of each section.
15 The tenderer is to acquaint him as to the specific requirements of this tender as contained in items 107 and 108 of the Preliminaries bill as contained in the bills of quantities. No claim will be entertained due to the failure of the tenderer to allow for these requirements.
# C2.2 Bill of Quantities

<table>
<thead>
<tr>
<th></th>
<th>SECTION 1 : DEMOLITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lump Sum for Disposal of Asbestos</td>
</tr>
<tr>
<td></td>
<td>Lump Sum for Demolition and disposal of Structural Steel work</td>
</tr>
<tr>
<td></td>
<td>Lump Sum for breaking up and removal of Concrete</td>
</tr>
<tr>
<td></td>
<td>Lump Sum for removal of existing work (doors, windows, ancillary brickwork, joinery work, fittings, carpets, floor coverings, lighting, ironmongery, etc)</td>
</tr>
<tr>
<td></td>
<td>Lump Sum for Site Clearance (clearing and grubbing, excavation not exceeding 2m deep to remove foundations)</td>
</tr>
<tr>
<td></td>
<td>Deduct: Credit for materials salvaged from the demolitions</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>SECTION 2 : DESIGN</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lump Sum for Project design costs include fees associated with all Professional fees architectural, electrical ,mechanical engineering, CAD support, civil engineering, site supervision and other support</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>SECTION 3 : CONSTRUCTION</td>
</tr>
<tr>
<td></td>
<td>3.1: PRELIMINARIES AND GENERAL</td>
</tr>
</tbody>
</table>
3.2: BUILDING WORK

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>01</td>
<td>EARTHWORKS</td>
</tr>
<tr>
<td>02</td>
<td>CONCRETE, FORMWORK AND REINFORCEMENT</td>
</tr>
<tr>
<td>03</td>
<td>MASONRY</td>
</tr>
<tr>
<td>04</td>
<td>WATERPROOFING</td>
</tr>
<tr>
<td>05</td>
<td>CARPENTRY AND JOINERY</td>
</tr>
<tr>
<td>06</td>
<td>CEILINGS, PARTITIONS AND ACCESS FLOORING</td>
</tr>
<tr>
<td>07</td>
<td>FLOOR COVERING, WALL LININGS, ETC</td>
</tr>
<tr>
<td>08</td>
<td>IRONMONGERY</td>
</tr>
<tr>
<td>09</td>
<td>METALWORK</td>
</tr>
<tr>
<td>10</td>
<td>PLASTERING</td>
</tr>
<tr>
<td>11</td>
<td>ROOF COVERINGS, ETC</td>
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<td>12</td>
<td>STRUCTURAL STEELWORK</td>
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<tr>
<td>13</td>
<td>TILING</td>
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<td>SANITARYWARE &amp; RAINWATER REMOVAL</td>
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<tr>
<td>15</td>
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<td>16</td>
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<td>Description</td>
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<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>17</td>
<td>EXTERNAL WORKS</td>
</tr>
<tr>
<td>18</td>
<td>PROVISIONAL SUMS- for any addition works</td>
</tr>
<tr>
<td>3.3</td>
<td>CIVIL WORK</td>
</tr>
<tr>
<td>01</td>
<td>PRELIMINARY AND GENERAL</td>
</tr>
<tr>
<td>02</td>
<td>SITE CLEARANCE AND EARTHWORKS</td>
</tr>
<tr>
<td>03</td>
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<tr>
<td>07</td>
<td>TELKOM AND IRRIGATION DUCTS</td>
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<tr>
<td>08</td>
<td>PROVISIONAL SUMS- for any additional works</td>
</tr>
</tbody>
</table>

### 3.4 : FIRE PROTECTION

Lump Sum for Supply, installation and commissioning of the Building requirements, as specified by Contractors Engineer, including all additional items required to complete works for the installation for correct operation and commissioning of the installation.

<table>
<thead>
<tr>
<th>Reference no</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>HOSE REELS AND EXTINGUISHERS</td>
</tr>
</tbody>
</table>
02 - FIRE SIGNAGE

3.5 : ELECTRICAL INSTALLATION

Lump Sum for Supply, installation and commissioning of cables (including, fixing, labelling etc.)

Lump Sum for Supply, installation and commissioning of DBs complete with labelling, legend cards, etc as specified by Contractors Engineers and Electrical specification.

Lump Sum for Supply, installation and commissioning of luminaires as specified by Contractors Engineers and Electrical specification.

3.6: MECHANICAL VENTILATION

Lump Sum for Pricing for & all HVAC Systems herein is to include, but not limited to:

Supply, Install, Commission & guarantee of all equipment & materials including all tools, equipment [Ladders, Scaffolding, Crainage etc] such that the HVAC Installation as specified by Contractors Engineers and specification.

Supply & installation of all cabling and wiring c/w termination, trunking and conduiting from the local isolator [by electrician] to the airconditioning units plus final connection and all interlinking control wiring [assume indoor and outdoor units are less than 15m apart]. Air Conditioning power supply to be provided by the Electrician.

Any additional items required to complete works for the installation for correct operation and commissioning of the installation.

3.7: PLUMBING & DRAINAGE
The lump Sum shall include the systems, materials and equipment to be used for the hot and cold-water installation and the drainage installation for the project.

<table>
<thead>
<tr>
<th>SUBTOTAL</th>
<th>ST</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTINGENCIES</td>
<td>TAX</td>
<td>10,00</td>
</tr>
<tr>
<td>TOTAL INCLUDING CONTINGENCIES</td>
<td>ST</td>
<td>-</td>
</tr>
<tr>
<td>VALUE ADDED TAX</td>
<td>TAX</td>
<td>15,00</td>
</tr>
</tbody>
</table>

ADD: VAT at the rate of 15%
CAPE TOWN INTERNATIONAL AIRPORT

DEMOLITION, DESIGN AND RECONSTRUCTION OF THE OLD BID AIR AND MENZIES BUILDING AT CAPE TOWN INTERNATIONAL AIRPORT

C3 Scope of work

1 DESCRIPTION OF THE WORKS

1.1 Employer's objectives

The objective is to demolish the Old Bidair and Menzies warehouse that was left derelict when the tenants were moved and reconstruct a warehouse of similar size and layout. The main purpose of this project is to demolish the warehouse in order to eliminate the risk of the structure collapsing under its own self-weight, it is also the objective of this project to reconstruct a general-purpose warehouse that will be used to house various tenants on a temporary basis while their warehouses are being repaired.

1.2 Overview of the works

The Old Bidair and Menzies warehouse consist of steel frame structure cladded with Asbestos sheeting on the roof and three of its sides. The front of the building is closed with 4.5m by 4.6m high steel framed warehouse doors cladded by IBR sheeting, the building is 60m long and 18m wide.

The scope of the works for demolition of the existing structure includes the following works:

(a) Existing Support Structure.
The structural integrity of the existing structure has been compromised, therefore before any workers can be allowed to work on top of the structure, the structure will have to be propped so that it can support additional weight imposed on its roof. The installed support work will have to be approved by a certified Professional Engineer before work can commence on the structure.

(b) Asbestos Removal Plan

The building has been cladded with Asbestos sheeting on its side, the contractor is to develop an Asbestos removal plan for the warehouse before any work can commence, this Asbestos removal plan will be submitted for approval to ACSA’s health and safety department and the relevant government authority. The contractor is expected to appoint an Approved Inspection Authority (AIA) to conduct the magnitude of possible contamination and set up air monitoring during removal process.

(c) Removal of Asbestos Sheeting

The existing Asbestos sheeting will be removed and disposed off as per the details of the Asbestos removal plan. When removing the sheeting care shall be taken not to brake the sheets and introduce Asbestos flakes in the air.
Part C:
Scope of work

(d) Controlled demolition of the existing steel frame
The existing steel frame will be demolished, this demolition work will include removal and disposal of Purlins, Columns, Beams and any other structural steel on site. The contractor will be responsible for the safe disposal of the removed structural steel, bidders who provide a cost saving based on reselling of the structural steel would be preferred in this project.

(e) Decommissioning of Existing services
The existing services such as Electricity, Water, Sewer etc. will have to be blocked off and locked out, the contractor will be expected to decommission the services, however this work will be supervised by ACSA’s maintenance departments. Where services are to be locked out only ACSA’s maintenance department locks will be used.

(f) Structural Concrete
The contractor is expected to demolish structural concrete where it exists, currently only the frame foundations are expected to be structural concrete.

(g) Surface Beds and Brickwork
The existing concrete floor and the brick office building within the hanger will have to be demolished

After the existing structure has been demolished, the contractor will construct a portal frame warehouse of a similar size to the existing warehouse, the scope of works for construction of the warehouse includes the following works:

(j) Design of New warehouse.
The Contractor is expected to team up with a consultant for the design of the new warehouse, the size and layout of the new warehouse will be exactly the same as the existing warehouse. The warehouse skeleton will be a structural steel frame, the building envelope will be IBR sheeting enclosing 3 sides of the building. The front of the warehouse will be closed with sliding IBR sheeting clad warehouse doors. The design of the warehouse should be such that rain water is prevented from entering the warehouse through the floor and side cladding joint, as such a 1m high double brick perimeter wall will be designed on non-opening sides of the warehouse.

The design of the warehouse will allow for two 4m x4m wide offices, the offices will be dry wall partitioned to allow future reconfiguration. The design will also allow for ablution facilities and one kitchen area of size similar to existing kitchens. All steel members should be protected against corrosion. The design team will obtain approval from ACSA at concept design stage and at detailed design stage. The contractor should note that there are no site investigations done on the existing site, therefore they should make provision for such investigations.

(k) Construction of new warehouse
The contractor should price for the construction of the warehouse and all the ancillary works associated with finished warehouse e.g. electrical points, ablutions, surface beds, foundations etc.
1.3 Extent of the works

The demolition of the existing warehouse should be prioritized and should take place within 1 month of site handover (it assumed all requirements e.g. permits & approvals would be completed when the warehouse is demolished). The contractor will have a maximum of 6 months to complete the works. The contractor will have to identify services timeously and ensure no disruption to ACSA Operations Client will ensure that all services to the area are made safe or disconnected where required.

1.4 Location of the works

The Old Bidair and Menzies hangers is located at Cape Town international Airport, General Aviation Area Foxtrot 5, see the figure below.
Figure: Location of the Old BidAir and Menzies Hangers (Foxtrot 5)

1.5 Temporary works

There are no temporary works involved on this project

1.6 Project specification

Refer to appendix A

2 Drawings

The drawings used for setting up the Bills of Quantities are as follows:

Working and Construction Drawings

3 PROCUREMENT

3.1 Preferential procurement procedures

The works shall be executed in accordance with the conditions attached to preferences granted in accordance with the preferencing schedule.

3.1.1 Requirements for the sourcing and engagement of labour.

3.1.1.1 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.

3.1.1.2 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.

3.1.1.3 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 3.1.1.3.

3.1.1.4 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 have less than one full time person earning an income;
c) where subsistence agriculture is the source of income;

d) those who are not in receipt of any social security pension income

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

a) 50% women;
b) 25% youth who are between the ages of 18 and 25; and
c) 2% on persons with disabilities.

3.1.2 Specific provisions pertaining to SANS 1914-5

3.1.2.1 Definitions

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

3.1.2.3 Terms and conditions for the engagement of targeted labour

3.1.2.3.1 Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts to be signed between the Contractor and workers will be in accordance with the pro-forma contract, attached as Appendix E.1.

3.1.2.3.2 Further to the provisions of clause 5.2 of SANS 1914-5, the Contractor will use the pro-forma attendance register, attached as Appendix E.2, to record the required information as per said clause.

3.1.2.4 Variations to the SANS 1914-5

None

3.1.2.5 Training of targeted labour

3.1.2.5.1 The Employer will appoint a service provider that will provide training to the workers. The Contractor need not to provide for payment of said service provider.

3.1.2.5.2 Workers will receive 2 days training per every 22 working days for the duration of the Contract.

3.1.2.5.3 The Contractor shall pay an allowance equal to 100% of the task rate or daily rate to workers who attend training, in terms of 3.1.2.5.

3.1.2.5.4 Records pertaining to the attendance, progress and performance of trainees will be kept by the
3.1.2.5. The Contractor shall do nothing to dissuade targeted labour from participating in training programmes.

4 MANAGEMENT

4.1 Recording of weather

The Contractor shall erect an effective rainfall gauge on the site and record the daily rainfall figures in a book. Such book shall be handed to the employer’s representative for his signature no later than 12 days after rain that is considered to justify an extension of time occurs.

4.2 Unauthorized persons

The Contractor shall keep unauthorized persons from the works at all times. Under no circumstances may any person except guards be allowed to sleep on the building site.

4.3 Management meetings

The Employer’s Representative and the Contractor shall hold meetings relating to the progress of the works at regular intervals and at other such times as may be necessary. The Contractor shall attend all site meetings and shall ensure that all persons under his jurisdiction are notified timeously of all site meetings should the Employer’s Representative require their attendance at such meetings.

The Contractor shall keep on site a set of minutes of all site meetings, daily records of resources (people and equipment employed), a site instruction book, a complete set of contract working drawings and a copy of the procurement document and make these available at all reasonable times to all persons concerned with the contract.

4.4 Forms for contract administration

The Contractor shall be required to submit an updated contractor monthly report during site meetings, which will be used by the consultant to update the client.

4.5 Payment certificates

The Contractor to ensure that the VAT invoice required with each certificate is delivered timeously. The date of the certificate will be that of the date when the certificate is received by the consultant.

The Contractor to ensure timeous submission of all required documentation for the expedient processing of payment certificates, as required by the client, eg BAS entity forms, company registration details, VAT clearance certificates, etc. The Contractor is responsible for such documentation submission.
4.6 Labour intensive specification

Labour intensive competencies of supervisors and management staff

Contractors having a CIDB contractor grading designation of 5CE 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 1CE, 2CE, 3CE and 4CE 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

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

5.1 Occupational Health and Safety Regulations (ADDENDUM A)
5.2 Standard Occupational Health and Safety Specification (ADDENDUM B)
5.3 Environmental Management Plan (ADDENDUM C)
5.4 Pro-forma contract between Contractor and Worker (ADDENDUM D)
5.5 Pro-forma Attendance Register (ADDENDUM E)
5.6 Contract Person / Days Calculation Format (ADDENDUM F)
5.7 Contractor monthly report format (see 4.4 above) also available in electronic format (ADDENDUM G)
5.8 Guidelines for the implementation of labour-intensive infrastructure projects under the Expanded Public Works Programme (ADDENDUM H)
5.9 Drawings (ADDENDUM I)
ADDENDUM A

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993

CONSTRUCTION REGULATIONS, 2003

The Minister of Labour has under section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), after consultation with the Advisory Council for Occupational Health and Safety, made the regulations in the Schedule.

SCHEDULE

Definitions

1. In these Regulations any word or expression to which a meaning has been assigned in the Act shall have the meaning so assigned and, unless the context otherwise indicates—

“Agent” means any person who acts as a representative for a client in the managing the overall construction work.

“angle of repose” means the steepest angle of a surface at which a mass of loose or fragmented material will remain stationary in a pile on a surface, rather than sliding or crumbling away;
“Batch plant” means machinery, appliances or other similar devices that are assembled in such a manner so as to be able to mix materials in bulk for the purposes of using the mixed product for construction work;

“Client” means any person for whom construction work is performed;

“competent person” in relation to construction work, means any person having the knowledge, training and experience specific to the work or task being performed: Provided that where appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training;

“Construction work” means any work in connection with—

(a) The erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;

(b) The installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;

(c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or

(d) the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work;

“construction vehicle” means a vehicle used for means of conveyance for transporting persons or material or both such persons and material, as the case may be, both on and off the construction site for the purposes of performing construction work;

A “Contractor” mean an employer, as defined in section 1 of the Act, who performs construction work and includes principal contractors;

“Design” in relation to any structure includes drawings, calculations, design details and specifications;

“Designer” means any person who—

(a) prepares a design;
(b) checks and approves a design;

(c) Arranges for any person at work under his control (including an employee of his, where he is the employer) to prepare a design, as well as;

(d) Architects and engineers contributing to, or having overall responsibility for the design;

(e) Build services engineers designing details for fixed plant;

(f) Surveyors specifying articles or drawing up specifications;

(g) Contractors carrying out design work as part of a design and build project;

(h) Temporary works engineer designing formwork and false work; and

(i) Interior designers, shop-fitters and landscape architects.

“ergonomics” means the application of scientific information concerning humans to the design of objects, systems and the environment for human use in order to optimise human well-being and overall system performance;

“Excavation work” means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

“explosive powered tool” means a tool that is activated by an explosive charge and that is used for driving bolts, nails and similar objects for the purpose of providing fixing;

“fall prevention equipment” means equipment used to prevent persons from falling from an elevated position, including personal equipment, body harness, body belts, lanyards, lifelines or physical equipment, guardrails, screens, barricades, anchorages or similar equipment;

“fall arrest equipment” means equipment used to arrest the person in a fall from an elevated position, including personal equipment, body harness, lanyards, deceleration devices, lifelines or similar equipment, but excludes body belts;
“fall protection plan” means a documented plan, of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk;

“Hazard identification” means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed;

“Health and safety file” means a file, or other record in permanent form, containing the information required as contemplated in these regulations;

“Health and safety plan” means a documented plan which addresses hazards identified and include safe work procedures to mitigate, reduce or control the hazards identified;

“Health and safety specification” means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons;

“material hoist” means a hoist used to lower or raise material and equipment, and includes cantilevered platform hoists, mobile hoists, friction drive hoists, scaffold hoists, rack and pinion hoists and combination hoists;

“Medical certificate of fitness” means a certificate valid for one year issued by an occupational health practitioner, issued in terms of these regulations, whom shall be registered with the Health Professions Council of South Africa;

“Method statement” means a written document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment;

“Mobile plant” means machinery, appliances or other similar devices that is able to move independently, for the purpose of performing construction work on the construction site;

“National Building Regulations” means the National Building Regulations made under section 17(1) of the National Building Regulations and Building Standards Act, 1977 (Act No.103 of 1977), and published under Government Notice No. R.1081 of 10 June 1988, as amended;

“Person day” means one individual carrying out construction work on a construction site for one normal working shift;

“principal contractor” means an employer, as defined in section 1 of the Act who performs construction work and is appointed by the client to be in overall control and management of a part of or the whole of a construction site;
“professional engineer or professional certificated engineer” means any person holding registration as either a Professional Engineer or Professional Certificated Engineer under the Engineering Profession Act, 2000 (Act No. 46 of 2000);

“Professional technologist” means any person holding registration as a Professional Technologist under the Engineering Profession Act, 2000 (Act No. 46 of 2000);

“Provincial director” means the provincial director as defined in regulation 1 of the General Administrative Regulations under the Act;

“risk assessment” means a programme to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard;

“Roof apex height” means the dimensional height in meters measured from the lowest ground level abutting any part of a building to the highest point of the roof;


“SABS 0400” means the South African Bureau of Standards, Code of Practice for the application of the National Building Regulations;


“SABS 1903” means the South African Bureau of Standards’ Standard Front-end Specification entitled: “Safety requirements on suspended access equipment – Design calculations, stability criteria, construction-tests”;

"Scaffold” means any temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both;

“shoring” means a structure such as a hydraulic, mechanical or timber/steel shoring system that supports the sides of an excavation and which is intended to prevent the cave-in or the collapse of the sides of an excavation, and “shoring system” has a corresponding meaning;

“Structure” means—
(a) any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;

(b) any formwork, false work, scaffold or other structure designed or used to provide support or means of access during construction work; or

(c) any fixed plant in respect of work which includes the installation, commissioning, decommissioning or dismantling and where any such work involves a risk of a person falling two meters or more;

“Suspended platform” means a working platform suspended from supports by means of one or more separate ropes from each support;

“The Act” means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

“Tunneling” means the construction of any tunnel beneath the natural surface of the earth for a purpose other than the searching for or winning of a mineral;

Scope of application

2.(1) These Regulations, shall apply to any persons involved in construction work.

(2) The provisions of sub regulation 4.(1)(a) shall not be applicable where the construction work carried out is in relation to a single storey domestic building for a client who is going to reside in such dwelling upon completion thereof.

(3) The provisions of sub regulations 4.(1)(a) and 5(1), 5.(3)(a) and 5(4) shall not be applicable where the construction work is in progress and more than fifty percent thereof has been completed at the date of promulgation of these regulations: Provided that an inspector may instruct accordingly that these Regulations shall be applicable.

Notification of construction work

3.(1) A principal contractor who intends to carry out any construction work shall—

(a) before carrying out that work, notify the provincial director in writing of the construction work if it includes—

(i) The demolition of a structure exceeding a height of 3 meters; or

(ii) The use of explosives to perform construction work; or
(iii) The dismantling of fixed plant at a height greater than 3m.

(b) before carrying out that work, notify the provincial director in writing when the construction work—

(i) Exceeds 30 days or will involve more than 300 person days of construction work; and

(ii) Includes excavation work deeper than 1m; or

(iii) Includes working at a height greater than 3 meters above ground or a landing.

(2) The notification to the provincial director contemplated in sub regulation (1) must be done on the form similar to ADDENDUM A to these regulations.

(3) A principal contractor shall ensure that a copy of the completed form contemplated in sub regulation (2) is kept on site for inspection by an inspector, client, client’s agent or employee.

Client

4. (1) A client shall be responsible for the following in order to ensure compliance with the provisions of the Act—

(a) to prepare a documented health and safety specification for the construction work, and provide any principal contractor who is making a bid or appointed to perform construction work for the client with the same;

(b) To promptly provide the principal contractor and his or her agent with any information which might affect the health and safety of any person at work carrying out construction work;

(c) To appoint each principal contractor in writing for the project or part thereof on a construction site;

(d) to take reasonable steps to ensure that each principal contractor’s health and safety plan as determined in sub regulation 5(1) is implemented and maintained on the construction site: Provided that the steps taken, shall include periodic audits at intervals mutually agreed upon between the client and principal contractor, but at least once every month;

(e) to stop any contractor from executing construction work which is not in accordance with the principal contractor’s health and safety plan contemplated in sub regulation 5(1) for the site or which poses to be a threat to the health and safety of persons;
(f) to ensure that where changes are brought about, sufficient health and safety information and appropriate resources are made available to the principal contractor to execute the work safely;

(g) to ensure that every principal contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing on site; and

(h) To ensure that potential principal contractors submitting tenders, have made provision for the cost of health and safety measures during the construction process.

(2) A client shall discuss and negotiate with the principal contractor the contents of the health and safety plan contemplated in sub regulation 5(1) and thereafter finally approve the health and safety plan for implementation.

(3) A client shall ensure that a copy of the principal contractor’s health and safety plan is available on request to an employee, inspector or contractor.

(4) No client shall appoint a principal contractor to perform construction work, unless the client is reasonably satisfied that the principal contractor that he or she intends to appoint has the necessary competencies and resources to carry out the work safely.

(5) A client may appoint an agent in writing to act as his or her representative and where such an appointment is made, the responsibilities as are imposed by these regulations upon a client, shall as far as reasonably practicable apply to the person so appointed.

(6) No client shall appoint any person as his agent, unless the client is reasonably satisfied that the person he or she intends to appoint has the necessary competencies and resources to perform the duties imposed on a client by these regulations.

Principal Contractor and Contractor

5. (1) A principal contractor shall provide and demonstrate to the client a suitable and sufficiently documented health and safety plan, based on the client’s documented health and safety specification contemplated in regulation 4(1)(a), which shall be applied from the date of commencement of and for the duration of the construction work.

(2) A principal contractor shall take reasonable steps as far as is necessary to ensure co-operation between all contractors to enable each of those contractors to comply with the provisions of these regulations.

(3) A principal contractor shall be responsible for the following in order to ensure compliance with the provisions of the Act—
(a) to provide any contractor who is making a bid or appointed to perform construction work for the principal contractor, with the relevant sections of the documented health and safety specification contemplated in regulation 4(1)(a) pertaining to the construction work which has to be performed;

(b) to appoint each contractor contemplated in paragraph (a) in writing for the part thereof of the project on a construction site;

(c) to take reasonable steps to ensure that each contractor’s health and safety plan contemplated in sub regulation (4) is implemented and maintained on the construction site: Provided that the steps taken shall include periodic audits at intervals mutually agreed upon between the principal contractor and contractor(s), but at least once every month;

(d) to stop any contractor from executing construction work which is not in accordance with the principal contractor’s and/or contractor’s health and safety plan for the site or which poses a threat to the health and safety of persons;

(e) to ensure that where changes are brought about, sufficient health and safety information and appropriate resources are made available to the contractor to execute the work safely;

(f) to ensure that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing on site; and

(g) to ensure that potential contractors submitting tenders have made provision for the cost of health and safety measures during the construction process.

(4) A contractor shall provide and demonstrate to the principal contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the principal contractor’s health and safety specification contemplated in regulation 5(3)(a) provided by the principal contractor, which plan shall be applied from the date of commencement of and for the duration of the construction work.

(5) A principal contractor shall discuss and negotiate with the contractor the contents of the health and safety plan contemplated in sub regulation (4), and shall finally approve that plan for implementation.

(6) A principal contractor shall ensure that a copy of his or her health and safety plan contemplated in sub regulation (1), as well as the contractor’s health and safety plan contemplated in sub regulation (4), is available on request to an employee, inspector, contractor, client or client’s agent.

(7) Every contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of the Act and these Regulations, is opened and kept on site and made available to an inspector, client, client’s agent or principal contractor upon request.
(8) A principal contractor shall hand over a consolidated health and safety file to the client upon completion of the construction work and shall, in addition to the documentation referred to in sub regulation (7), include a record of all drawings, designs, materials used and other similar information concerning the completed structure.

(9) A principal contractor shall ensure that in addition to the documentation required in the health and safety file as determined in sub regulations (7) and (8), a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done is included and available.

(10) No principal contractor shall appoint a contractor to perform construction work unless the principal contractor is reasonably satisfied that the contractor he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely.

(11) Where a contractor appoints another contractor to perform construction work, the responsibilities as determined in sub regulations (2) to (6) that apply to the principal contractor shall apply to the contractor as if he or she were the principal contractor.

(12) No contractor shall appoint another contractor to perform construction work unless he or she is reasonably satisfied that the contractor he or she intends to appoint has the necessary competencies and resources to perform the construction work safely.

(13) Contractors shall co-operate with the principal contractor as far as is necessary to enable each of them to comply with the provisions of the Act.

(14) Every contractor shall as far as is reasonably practicable, promptly provide the principal contractor with any information which might affect the health and safety of any person at work carrying out construction work or any person who might be affected by the work of such a person at work or which might justify a review of the health and safety plan.

Supervision of construction work

6. (1) Every contractor shall appoint a full-time competent employee designated in writing as the construction supervisor, with the duty of supervising the performance of the construction work.

(2) The contractor may in writing appoint one or more competent employees to assist the appointed construction supervisor contemplated in sub regulation (1), and every such employee shall, to the extent clearly defined by the contractor in the letter of designation, have the same duties as the construction supervisor: Provided that the designation of any such employee shall not relieve the construction supervisor contemplated in sub regulation (1) of any personal accountability for failing in his supervisory duties referred to in terms of this regulation.
(3) Where the contractor has not appointed an employee as referred to sub regulation (2), or, in the opinion of an inspector, not a sufficient number of such employees, that inspector may require the employer to appoint the number of employees indicated by the inspector, and the provisions of sub regulation (2) shall apply in respect of those employees as if they had in the first instance been appointed under sub regulation (2).

(4) No construction supervisor appointed in terms of sub regulation (1) shall supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that a sufficient number of competent employees have been appropriately designated under sub regulation (2) on all the construction sites, the appointed construction supervisor may supervise more than one site.

(5) If, however, the construction supervisor appointed in terms of sub regulation (1) for more than one construction site will not, in the opinion of an inspector, be able to supervise the works favorably, an inspector may require the contractor to appoint the required number of employees as contemplated in sub regulation (2) to assist the appointed construction supervisor or instruct the contractor to appoint the construction supervisor who had been appointed in terms of sub regulation (1) more appropriately.

(6) A contractor shall upon having considered the size of the project, the degree of dangers likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction safety officer in writing to assist in the control of all safety related aspects on the site: Provided that, where the question arises as to whether a construction safety officer is necessary, the decision of an inspector shall be decisive.

(7) The appointed construction safety officer as contemplated in sub regulation (6) shall as far as is reasonably practicable be utilized to give input at the early design stage and where not appointed at this stage, he or she shall be given the opportunity to input into the health and safety plan when wanting to do so, and a record of such shall be kept in the health and safety file contemplated in regulation 5(7).

(8) No contractor shall appoint a construction safety officer to assist in the control of safety related aspects on the site unless he or she is reasonably satisfied that the construction safety officer he or she intends to appoint has the necessary competencies and resources to assist the contractor.

Risk assessment

7. (1) Every contractor performing construction work shall before the commencement of any construction work and during construction work, cause a risk assessment to be performed by a competent person appointed in writing and the risk assessment shall form part of the health and safety plan to be applied on the site and shall include at least—

(a) The identification of the risks and hazards to which persons may be exposed to;
(b) The analysis and evaluation of the risks and hazards identified;

(c) A documented plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;

(d) a monitoring plan; and

(e) A review plan.

(2) A contractor shall ensure that a copy of the risk assessment is available on site for inspection by an inspector, client, client's agent, contractor, employee, representative trade union, health and safety representative or any member of the health and safety committee.

(3) Every contractor shall consult with the health and safety committee or, if no health and safety committee exists, with a representative group of employees, on the development, monitoring and review of the risk assessment.

(4) A contractor shall ensure that all employees under the his or her control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment.

(5) A principal contractor shall ensure that all contractors are informed regarding any hazard as stipulated in the risk assessment before any work commences, and thereafter at such times as may be determined in the risk assessment.

(6) A contractor shall ensure that as far as is reasonably practicable, ergonomic related hazards are analyzed, evaluated and addressed in the risk assessment.

(7) Notwithstanding the requirements laid down in sub regulation (4), no contractor shall allow or permit any employee to enter any site, unless such person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

(8) A contractor shall ensure that all visitors to a construction site undergoes health and safety instruction pertaining to the hazards prevalent on the site and shall be provided with the necessary
personal protective equipment: Provided that where visits are made only to the site office which is not in direct contact with the construction work activities, those health and safety instructions and the provision of personal protective equipment may not apply.

(9) Every employee on site shall-

(a) be in possession of proof of the health and safety induction training as determined in sub regulation (7), issued by a competent person of the contractor prior to the commencement of construction work; and

(b) Carry the proof contemplated in paragraph (a) for the duration of that project or for the period that the employee will be on the construction site.

Fall protection

8. (1) A contractor shall cause—

(a) The designation of a competent person, responsible for the preparation of a fall protection plan;

(b) The fall protection plan contemplated in (a) to be implemented, amended where and when necessary and maintained as required;

(c) Steps to be taken in order to ensure the continued adherence to the fall protection plan.

(2) The fall protection plan contemplated in sub regulation (1), shall include—

(a) a risk assessment of all work carried out from an elevated position which shall include the procedures and methods used to address all the risks identified per location;

(b) the processes for evaluation of the employees physical and psychological fitness necessary to work at elevated positions and the records thereof;

(c) the programme for the training of employees working from elevated positions and records thereof; and
(d) The procedure addressing the inspection, testing and maintenance of all fall protection equipment.

(3) A contractor shall ensure that the construction supervisor appointed in terms of regulation 6(1), is in possession of the most recently updated version of the fall protection plan.

(4) Not with standing the provisions of sub regulations (1) and (2), the contractor shall ensure that—

(a) All unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;

(b) No person works in an elevated position, unless such work is performed safely as if working from a scaffold or ladder;

(c) Notices are conspicuously placed at all openings where the possibility exists that a person might fall through such openings;

(d) Fall prevention and fall arrest equipment is—

(i) Suitable and of sufficient strength for the purpose or purposes for which it is being used having regard to the work being carried out and the load, including any person, it is intended to bear; and

(ii) Securely attached to a structure or plant and the structure or plant and the means of attachment thereto is suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who is liable to fall;

(e) fall arrest equipment shall only be used where it is not reasonably practicable to use fall prevention equipment; and

(f) Suitable and sufficient steps shall be taken to ensure, as far as is reasonably practicable, that in the event of a fall by any person, the fall arrest equipment or the surrounding environment does not cause injury to the person.

(5) Where roof work is being performed on a construction site, the contractor shall ensure that in addition to the requirements set out in sub regulations (2) and (4), it is furthermore indicated in the fall protection plan—

(a) that the roof work has been properly planned;

(b) that the roof erectors are competent to carry out the work;

(c) that no employees are permitted to work on roofs during inclement weather conditions or if weather conditions are a hazard to the health and safety of the employees;
(d) that prominent warning notices are to be placed where all covers to openings are not of sufficient strength to withstand any imposed loads and where fragile material exists;

(e) that the areas mentioned in paragraph (d) are to be barricaded off to prevent persons from entering;

(f) that suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and

(g) that there is suitable and sufficient guard-rails or barriers and toe-boards or other similar means of protection to prevent, so far as is reasonably practicable, the fall of any person, material or equipment.

Structures

9. (1) A contractor shall ensure that—

(a) all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work; and

(b) No structure or part of a structure is loaded in a manner which would render it unsafe.

(2) The designer of a structure shall—

(a) before the contract is put out to tender, make available to the client all relevant information about the design of the relevant structure that may affect the pricing of the construction work;

(b) inform the contractor in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered;

(c) subject to the provisions of paragraph (a) and (b) ensure that the following information is included in a report and made available to the contractor—

(i) A geo-science technical report where appropriate;

(ii) The loading the structure is designed to withstand; and

(iii) The methods and sequence of construction.
(d) not include anything in the design of the structure necessitating the use of dangerous procedures or materials hazardous to the health and safety of persons, which could be avoided by modifying the design or by substituting materials;

(e) Take into account the hazards relating to any subsequent maintenance of the relevant structure and should make provision in the design for that work to be performed to minimize the risk;

(f) carry out sufficient inspections at appropriate times of the construction work involving the design of the relevant structure in order to ensure compliance with the design and a record of those inspections is to be kept on site;

(g) Stop any contractor from executing any construction work which is not in accordance with the relevant design;

(h) conduct a final inspection of the completed structure prior to its commissioning in order to render it safe for use and issue a completion certificate to the contractor; and

(i) Ensure that when preparing the design, cognizance is taken of ergonomic design principles in order to minimize ergonomic related hazards in all phases of the life cycle of a structure.

(3) A contractor shall ensure that all drawings pertaining to the design of the relevant structure are kept on site and are available on request by an inspector, contractors, client, client’s agent or employee.

(4) Any owner of a structure shall ensure that inspections of that structure upon completion are carried out periodically by competent persons in order to render the structure safe for continued use: Provided that the inspections are carried out at least once every six months for the first two years and thereafter yearly and records of such inspections are kept and made available to an inspector upon request.

(5) Any owner of a structure shall ensure that the structure upon completion is maintained in such a manner that the structure remains safe for continued use and such maintenance records shall be kept and made available to an inspector upon request.

Formwork and support work

10. A contractor shall ensure that—

(a) All formwork and support work operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose;

(b) all formwork and support work structures are adequately designed, erected, supported, braced and maintained so that they will be capable of supporting all anticipated vertical and lateral loads that may be applied to them and also that no loads are imposed onto the structure that the structure is not designed to withstand;
(c) The designs of formwork and support work structures are done upon close reference to the structural design drawings and where any uncertainty exists; the structural designer should be consulted;

(d) all drawings pertaining to the design of formwork or support work structures are kept on the site and are available on request by an inspector, contractor, client, client’s agent or employee;

(e) all equipment used in the formwork or support work structure are carefully examined and checked for suitability by a competent person, before being used;

(f) all formwork and support work structures are inspected by a competent person immediately before, during and after the placement of concrete or any other imposed load and thereafter on a daily basis until the formwork and support work structure has been removed and the results have been recorded in a register and made available on site;

(g) if, after erection, any formwork and support work structure is found to be damaged or weakened to such a degree that its integrity is affected, it shall be safely removed or reinforced immediately;

(h) Adequate precautionary measures are taken in order to—

(i) Secure any deck panels against displacement; and

(ii) Prevent any person from slipping on support work or formwork due to the application of formwork or support work release agents;

(i) as far as is reasonably practicable, the health of any person is not affected through the use of solvents or oils or any other similar substances;

(j) upon casting concrete, the support work or formwork structure should be left in place until the concrete has acquired sufficient strength to support safely, not only its own weight, but also any imposed loads and not removed until authorization has been given by the competent person contemplated in paragraph (a);

(k) Provision is made for safe access by means of secured ladders or staircases for all work to be carried out above the foundation bearing level;

(l) All employees required to erect, move or dismantle formwork and support work structures are provided with adequate training and instruction to perform these operations safely; and

(m) The foundation conditions are suitable to withstand the weight caused by the formwork and support work structure and any imposed loads such that the formwork and support work structure is stable.
Excavation work

11.(1) A contractor shall ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing.

(2) A contractor shall evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins.

(3) Every contractor who performs excavation work shall—

(a) Take suitable and sufficient steps in order to prevent, as far as is reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation;

(b) Not require or permit any person to work in an excavation which has not been adequately shored or braced: Provided that shoring and bracing may not be necessary where—

(i) The sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or

(ii) Such an excavation is in stable material: Provided that—

(aa) permission being given in writing by the appointed competent person contemplated in sub regulation (1) upon evaluation by him or her of the site conditions; and

(bb) where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations shall be decisive and such a decision shall be noted in writing and signed by both the competent person contemplated in sub regulation (1) and the professional engineer or technologist, as the case may be;

(c) take steps to ensure that the shoring or bracing contemplated in paragraph (b) is designed and constructed in such a manner rendering it strong enough to support the sides of the excavation in question;

(d) ensure that no load, material, plant or equipment is placed or moved near the edge of any excavation where it is likely to cause its collapse and thereby endangering the safety of, any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing;

(e) Ensure that where the stability of an adjoining building, structure or road is likely to be affected by the making of an excavation, the steps are taken that may be necessary to ensure the stability of such building, structure or road and the safety of persons;
(f) cause convenient and safe means of access to be provided to every excavation in which persons are required to work and such access shall not be further than 6m from the point where any worker within the excavation is working;

(g) ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and shall before the commencement of excavation work that may affect any such service, take the steps that may be necessary to render the circumstances safe for all persons involved;

(h) cause every excavation, including all bracing and shoring, to be inspected—

(i) Daily, prior to each shift;

(ii) After every blasting operation;

(iii) After an unexpected fall of ground;

(iv) After substantial damage to supports; and

(v) After rain,

by the competent person contemplated in sub regulation (1), in order to pronounce the safety of the excavation to ensure the safety of persons, and those results are to be recorded in a register kept on site and made available to an inspector, client, client’s agent, contractor or employee upon request;

(i) Cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be—

(i) Adequately protected by a barrier or fence of at least one meter in height and as close to the excavation as is practicable; and

(ii) Provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor;

(j) ensure that all precautionary measures as stipulated for confined spaces as determined in the General Safety Regulations promulgated by Government Notice No.R.1031 of 30 May 1986, as amended, are complied with when entering any excavation;

(k) ensure that, where the excavation work involves the use of explosives, a method statement is developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for excavation work and that the procedures therein are followed; and

(l) Cause warning signs to be positioned next to an excavation within which persons are working or carrying out inspections or tests.
Demolition work

12.(1) A contractor shall appoint a competent person in writing to supervise and control all demolition work on site.

(2) A contractor shall ensure that prior to any demolition work being carried out, and in order also to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a method statement on the procedure to be followed in demolishing the structure is developed.

(3) During the demolition, a competent person shall check the structural integrity of the structure at intervals determined in the method statement contemplated in sub regulation (2), in order to avoid any premature collapses.

(4) Every contractor who performs demolition work shall—

(a) With regard to a structure being demolished, take steps to ensure that—

(i) No floor, roof or other part of the structure is overloaded with debris or material in a manner which would render it unsafe;

(ii) all reasonably practicable precautions are taken to avoid the danger of the structure collapsing when any part of the framing of a framed or partly framed building is removed, or when reinforced concrete is cut; and

(iii) precautions are taken in the form of adequate shoring or such other means as may be necessary to prevent the accidental collapse of any part of the structure or adjoining structure;

(b) Not require or permit any person to work under unsupported overhanging material, which has not been adequately supported, shored or braced;

(c) take steps to ensure that any support, shoring or bracing contemplated in paragraph (b), is designed and constructed so that it is strong enough to support the overhanging material;

(d) where the stability of an adjoining building, structure or road is likely to be affected by demolition work on a structure, take such steps as may be necessary to ensure the stability of such structure or road and the safety of persons;

(e) ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in anyway, be affected by the work to be performed, and shall before the commencement of demolition work that may affect any such service, take the steps that may be necessary to render circumstances safe for all persons involved;

(f) Cause every stairwell used and every floor where work is being performed in a building being demolished, to be adequately illuminated by either natural or artificial means;
(g) cause convenient and safe means of access to be provided to every part of the demolition site in which persons are required to work; and

(h) erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under, or fence off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects.

(5) A contractor shall ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected.

(6) Waste and debris shall not be disposed from a high place by a chute unless the chute—

   (a) is adequately constructed and rigidly fastened;

   (b) if inclined at an angle of more than 45 degrees to the horizontal, is enclosed on its four sides;

   (c) if of the open type, is inclined at an angle of less than 45 degrees to the horizontal;

   (d) where necessary, is fitted with a gate at the bottom end to control the flow of material; and

   (e) is discharged into a container or an enclosed area surrounded by barriers.

(7) A contractor shall ensure that every chute used to dispose of rubble is designed in such a manner that rubble does not free-fall and that the chute is strong enough to withstand the force of the debris travelling along the chute.

(8) A contractor shall ensure that equipment is not used on floors or working surfaces, unless such floors or surfaces are of sufficient strength to support the imposed loads.

(9) Where the risk assessment indicates the presence of asbestos, a contractor shall ensure that all asbestos related work is conducted in accordance with the provisions of the, Asbestos Regulations promulgated by Government Notice No.R.155 of 10 February 2002, as amended.

(10) Where the risk assessment indicates the presence of lead, a contractor shall ensure that all lead related work is conducted in accordance with the provisions of the, Lead Regulations promulgated by Government Notice No.R.236 of 28 February 2002, as amended.

(11) Where the demolition work involves the use of explosives, a method statement is to be developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for demolition work and the procedures therein are adhered to.

(12) A contractor shall ensure that all waste and debris is as soon as reasonably practicable removed and disposed of from the site in accordance with the applicable legislation.
Tunneling

13. (1) Any contractor performing tunneling activities or works, shall comply with such requirements as published under the Mine Health and Safety Act, 1996 (Act No.29 of 1996), as amended.

(2) Notwithstanding the provisions of sub regulation (1), no person shall enter a tunnel, which has a height dimension less than 800mm.

Scaffolding

14. (1) Every contractor using access scaffolding, shall ensure that such scaffolding, when used, complies with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act.

(2) A contractor shall ensure that all scaffolding work operations are carried out under the supervision of a competent person who has been appointed in writing and that all scaffold erectors, team leaders and inspectors are competent to carry out their work.

Suspended platforms

15. (1) A contractor shall ensure that all suspended platform work operations are carried out under the supervision of a competent person who has been appointed in writing, and that all suspended platform erectors, operators and inspectors are competent to carry out their work.

(2) No contractor shall use or permit the use of a suspended platform, unless—

(a) The design, stability and construction thereof comply with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act;

(b) In possession of a certificate of system design issued by a professional engineer, certificated engineer or a professional technologist for the use of the suspended platform system; and

(c) he or she is, prior to the commencement of the work, is in possession of an operational compliance plan developed by a competent person based on the certificate of system design contemplated in paragraph (b) and applicable to the environment in which the system is being used, prior to the commencement of the work which must include proof of the—

(i) Competent person who has been appointed for supervision;

(ii) Competency of erectors, operators and inspectors;
(iii) operational design calculations which should comply with the requirements of the system design certificate;

(iv) Performance test results;

(v) Sketches indicating the completed system with the operational loading capacity of the platform;

(vi) Procedures for and records of inspections having been carried out; and

(vii) procedures for and records of maintenance work having been carried out:

Provided that sub regulation (2) shall only become applicable six months from the date of promulgation of these regulations.

(3) A contractor making use of a suspended platform system shall forward a copy of the certificate of system design issued by a professional engineer, certificated engineer or professional technologist including a copy of the design calculations, sketches and test results, to the provincial director before commencement of the use of the system and must further indicate the intended type of work, the system would be used for.

(4) A contractor need not re-submit a copy of the certificate of system design contemplated in subregulation (3) for every new project: Provided that the environment in which the system is being used does not change to such an extent that the system design certificate is no longer applicable and, should uncertainty exist of the applicability of the system design certificate, the decision of a professional engineer, certificated engineer or professional technologist shall be decisive.

(5) A contractor shall ensure that the outriggers of each suspended platform—

(a) are constructed of steel or any other material of similar strength and have a safety factor of at least four in relation to the load it is to carry; and

(b) Have suspension points provided with stop devices or other effective devices at the outer ends to prevent the displacement of ropes.

(6) The contractor shall ensure that—

(a) The parts of the building or structure on which the outriggers are supported, are checked by means of calculations to ensure that the required safety factor is adhered to without risk of damage to the building or structure;

(b) The suspension wire rope and the safety wire rope are separately connected to the outrigger;
(c) each person on a suspended platform is provided with and wears a safety harness as a fall prevention device which must at all times, be attached to the suspended platform or to the anchorage points on the structure whilst on the suspended platform;

(d) the hand or power driven machinery to be used for the lifting or lowering of the working platform of a suspended platform is constructed and maintained in such a manner that an uncontrolled movement of the working platform cannot occur;

(e) The machinery referred to in paragraph (d) is so situated that it is easily accessible for inspection;

(f) The rope connections to the outriggers are vertically above the connections to the working platform; and

(g) Where the working platform is suspended by two ropes only, the connections of the ropes to the working platform are of such height above the level of the working platform as to ensure the stability of the working platform.

(7) A contractor shall ensure that the suspended platform—

(a) is suspended as near as possible to the structure to which work is being done and, except when light work is being done, is secured at every working position to prevent horizontal movement between the suspended platform and the structure;

(b) is fitted with anchorage points to which workers shall attach the lanyard of the safety harness worn and used by the worker and such anchorage connections shall have sufficient strength to withstand any potential load applied to it; and

(c) is fitted with a conspicuous notice easily understandable by all workers working with the suspended platform, showing the maximum mass load which the suspended platform can carry.

(8) A contractor shall cause—

(a) The whole installation and all working parts of the suspended platform to be thoroughly examined in accordance with the manufacturer’s specification;

(b) The whole installation to be subjected to a performance test as determined by the standard to which the suspended platform was manufactured;

(c) the performance test contemplated in paragraph (b) to be done by a competent person appointed in writing with the knowledge and experience of erection and maintenance of suspended platforms or similar machinery and who shall determine the serviceability of
the structures, ropes, machinery and safety devices before they are used following every time they are erected;

(d) the performance test contemplated in paragraph (b) of the whole installation of the suspended platform shall be subjected to a load equal to that prescribed by the manufacturer or, in the absence of such load, to a load of 110 per cent of the rated mass load, at intervals not exceeding 12 months and in such a manner that every part of the installation is stressed accordingly;

(9) Not with standing the provisions of sub regulation (8), the contractor shall cause every hoisting rope, hook or other load-attaching device which forms part of the suspended platform to be thoroughly examined in accordance with the manufacturer’s specification by the competent person contemplated in sub regulation (8) before they are used following every time they are assembled, and, in cases of continuous use, at intervals not exceeding three months.

(10) A contractor shall ensure that the suspended platform supervisor appointed in terms of the provisions of sub regulation (1), or the suspended platform inspector mentioned in sub regulation (1), carries out a daily inspection of all the equipment prior to use, including establishing whether—

(a) All connection bolts are secure;
(b) All safety devices are functioning;
(c) All safety devices are not tampered with or vandalized;
(d) The maximum mass load of the platform is not exceeded;
(e) The occupants in the suspended platform are using safety harnesses which have been properly attached;
(f) There are no visible signs of damage to the equipment; and
(g) All reported operating problems have been attended to.

(11) A contractor shall ensure that all inspection and performance test records are kept on the construction site at all times and made available to an inspector, client, client’s agent or employee upon request.

(12) A contractor shall ensure that all employees required to work or to be supported on a suspended platform are—

(a) physically and psychologically fit to work safely in such an environment by being in possession of a medical certificate of fitness;
(b) Competent in conducting their work safely relating to suspended platforms and the training which employees receive or had received must include at least—

(i) How to access and egress the suspended platform safely;

(ii) How to correctly operate the controls and safety devices of the equipment;

(iii) Information on the dangers related to the misuse of safety devices; and

(iv) Information on the procedures to be followed in the case of—

(aa) an emergency;

(bb) the malfunctioning of equipment;

(cc) the discovery of a suspected defect in the equipment; and

(v) Instructions on the proper use of safety harnesses.

(13) Where the outrigger is to be moved, the contractor shall ensure that only persons trained and competent to effect such move, perform this task and that an inspection be carried out and the results thereof be recorded by the competent person prior to re-use of the suspended platform.

(14) A contractor shall ensure that the suspended platform is properly isolated after use at the end of each working day such that no part of the suspended platform will present a danger to any person thereafter.

Boatswain’s chairs

16.(1) A contractor shall ensure that every boatswain’s chair or similar device is securely suspended and is constructed in such a manner so as to prevent any occupant from falling there from.

(2) The contractor shall ensure that an inspection is carried out prior and a performance test immediately after, the boatswain chair has been erected and thereafter a visual inspection should be carried out on a daily basis prior to use.

Material hoists

17.(1) A contractor shall ensure that every material hoist and its tower have been constructed of sound material in accordance with the generally accepted technical standards and are strong enough and free from defects.
(2) A contractor shall cause the tower of every material hoist to be—

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

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

(c) Provided with a door or gate at least 2100 mm in height at each landing and such door or gate shall be kept closed, except when the platform is at rest at such a landing.

(3) A contractor shall cause—

(a) The platform of every material hoist to be designed in such a manner that it shall safely contain the loads being conveyed and that the combined weight of the platform and the load does not exceed the designed lifting capacity of the hoist;

(b) the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and

(c) Every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when the power is not being supplied to the hoisting machinery.

(4) No contractor shall require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person shall so convey trucks, barrows or material unless such articles are so secured or contained in such a manner that displacement thereof cannot take place during movement.

(5) A contractor shall cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.

(6) A contractor of a material hoist shall not require or permit any person to operate such a hoist, unless the person is competent in the operation thereof.

(7) No contractor shall require or permit any person to ride on a material hoist.

(8) A contractor shall cause every material hoist—

(a) To be inspected on a daily basis by a competent person who has been appointed in writing and has the experience pertaining to the erection and maintenance of material hoists or similar machinery.
(b) Inspection contemplated in paragraph (a), to include the determination of the serviceability of the entire material hoist including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices.

(c) Inspection result to be entered and signed in a record book which shall be kept on the premises for that purpose.

(d) To be properly maintained and that the maintenance records in this regard are kept on site.

(a) Batch plants

18.(1) A contractor shall ensure that all batch plants are operated and supervised by a competent person who has been appointed in writing.

(2) A contractor shall ensure that the placement and erection of a batch plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.

(3) A contractor shall ensure that all devices to start and stop a batch plant are provided and that these devices are—

(a) Placed in an easily accessible position; and

(b) Constructed in such a manner as to prevent accidental starting.

(4) The contractor shall ensure that the machinery and plant selected is suitable for the task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.

(5) No person shall be permitted to remove or modify any guard or safety equipment relating to a batch plant, unless authorised to do so by the appointed person as contemplated in sub regulation (1).

(6) A contractor shall ensure that all persons authorised to operate the batch plant are fully—

(a) Aware of all the dangers involved in the operation thereof; and

(b) Conversant with the precautionary measures to be taken in the interest of health and safety.

(7) No person supervising or operating a batch plant shall authorize any other person to operate the plant, unless such person is competent to operate such machinery.

(8) A contractor shall ensure that all precautionary measures as stipulated for confined spaces in the General Safety Regulations promulgated by Government Notice No.R.1031 dated 30 May 1986, as amended, are adhered to when entering any silo.
(9) A contractor shall ensure that a record is kept of any repairs or maintenance to a batch plant and that it is made available, on site, to an inspector, client, client’s agent or employee upon request.

(10) A contractor shall ensure that all lifting machines and lifting tackle used in the operation of a batch plant complies with the requirements of the Driven Machinery Regulations promulgated by Government Notice No.R.295 dated 26 February 1988, as amended;

(11) A contractor shall ensure that all precautionary measures are adhered to regarding the usage of electrical equipment in explosive atmospheres, when entering a silo, as contemplated in the Electrical Installation Regulations promulgated by Government Notice No.R. 2920 dated 23 October 1992, as amended.

Explosive powered tools

19. (1) No contractor shall use or permit any person to use an explosive powered tool, unless
   (a) it is provided with a protective guard around the muzzle end, which effectively confines any flying fragments or particles; and
   (b) The firing mechanism is so designed that the explosive powered tool will not function unless—
       (i) It is held against the surface with a force of at least twice its weight; and
       (ii) The angle of inclination of the barrel to the work surface is not more than 15 degrees from a right angle:

Provided that the provisions of this sub regulation shall not apply to explosive powered tools in which the energy of the cartridge is transmitted to the bolts, nails or similar relevant objects by means of an intermediate piston which has a limited distance of travel.

(2) A contractor shall ensure that—
   (a) Only cartridges suited for the explosive powered tool and the work to be performed are used;
   (b) The explosive powered tool is cleaned and examined daily before use and as often as may be necessary for its safe operation by a competent person who has been appointed;
(c) That the safety devices are in proper working order prior to use;

(d) When not in use, the explosive powered tool and the cartridges are locked up in a safe place, which is inaccessible to unauthorized persons;

(e) The explosive powered tool is not stored in a loaded condition;

(f) A warning notice is displayed in a conspicuous manner wherever the explosive powered tool is used;

(g) The issuing and collection of cartridges and nails or studs is-
   (i) Controlled and done in writing by a person having been appointed in writing; and
   (ii) Recorded in a register and that the recipient has accordingly signed for the receipt thereof as well as the returning of any spent and unspent cartridges;

(3) No contractor shall permit or require any person to use an explosive powered tool unless such person has been—

(a) Provided with and uses suitable protective equipment; and

(b) Trained in the operation, maintenance and use of such a tool.

Cranes

20. Notwithstanding the provisions of the Driven Machinery Regulations promulgated by Government Notice No.R.295 of 26 February 1988, as amended, a contractor shall ensure that where tower cranes are used—

(a) Account is taken of the effects of wind forces on the structure;

(b) Account is taken of the bearing capacity of the ground on which the tower crane is to stand;

(c) The bases for the tower cranes and tracks for rail-mounted tower cranes are firm and level;

(d) The tower cranes are erected at a safe distance from excavations;

(e) There is sufficient clear space available for erection, operation and dismantling;

(f) The tower crane operators are competent to carry out the work safely; and
(g) The tower crane operators are physically and psychologically fit to work in such an environment by being in possession of a medical certificate of fitness.

Construction vehicles and mobile plant

21.(1) A contractor shall ensure that all construction vehicles and mobile plants—

(a) Are of an acceptable design and construction;

(b) Are maintained in a good working order;

(c) Are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;

(d) Are operated by workers who-

   (i) Have received appropriate training and been certified competent and been authorized to operate such machinery; and

   (ii) Are physically and psychologically fit to operate such construction vehicles and mobile plant by being in possession of a medical certificate of fitness;

(e) Have safe and suitable means of access;

(f) Are properly organized and controlled in any work situation by providing adequate signaling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;

(g) Are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;

(h) Where appropriate, are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;

(i) Are equipped with an electrically operated acoustic signaling device and a reversing alarm; and

(j) Are on a daily basis inspected prior to use, by a competent person who has been appointed in writing and the findings of such inspection is recorded in a register.

(2) A Contractor shall furthermore ensure that—

(a) No person rides or is required or permitted to ride on any construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
(b) Every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;

(c) The traffic routes are suitable for the persons using them, sufficient in number, in suitable positions and of sufficient size;

(d) Every traffic route is, where necessary indicated by suitable signs for reasons of health or safety;

(e) All construction vehicles and mobile plant left unattended at night, adjacent to a freeway in normal use or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;

(f) Bulldozers, scrapers, loaders, and other similar mobile plant are, when being repaired or when not in use, fully lowered or blocked with controls in a neutral position, motors stopped and brakes set;

(g) Whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;

(h) Tools and material are secured in order to prevent movement when transported in the same compartment with employees;

(i) Vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and

(j) When workers are working on or adjacent to public roads, reflective indicators are provided and worn by the workers.

**Electrical installations and machinery on construction sites**

22. Notwithstanding the provisions contained in the Electrical Installation Regulations promulgated by Government Notice No. R.2920 of 23 October 1992 and the Electrical Machinery Regulations promulgated by Government Notice No. R.1593 of 12 August 1988, respectively, as amended, a contractor shall ensure that—

(a) Before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;

(b) All parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
in working areas where the exact location of underground electric power lines is unknown, employees using jackhammers, shovels or other hand tools which may make contact with a power line, are provided with insulated protective gloves or otherwise that the handle of the tool being used is insulated;

all temporary electrical installations are inspected at least once a week and electrical machinery on a daily basis before use on a construction site by competent persons and the records of these inspections are recorded in a register to be kept on site; and

The control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing.

Use and temporary storage of flammable liquids on construction sites

23. Not with standing the provisions for the use and storage of flammable liquids as determined in the General Safety Regulations promulgated by Government Notice No.R1031 dated 30 May 1986, as amended, a contractor shall ensure that—

(a) where flammable liquids are being used, applied or stored at the workplace concerned, this is done in such a manner which would cause no fire or explosion hazard, and that the workplace is effectively ventilated: Provided that where the workplace cannot effectively be ventilated-

(i) Every employee involved is provided with a respirator, mask or breathing apparatus of a type approved by the chief inspector, and

(ii) steps are taken to ensure that every such employee, while using or applying flammable liquid, uses the apparatus supplied to him or her;

(b) no person smokes in any place in which flammable liquid is used or stored, and such contractor shall affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking;

(c) flammable liquids on a construction site is stored in a well ventilated reasonably fire resistant container, cage or room and kept locked with proper access control measures in place;

(d) An adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognized symbolic signs;

(e) Only the quantity of flammable liquid needed for work on one day is to be taken out of the store for use;

(f) all containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, to be removed from the construction site and safely disposed of;
Where flammable liquids are decanted, the metal containers are bonded or earthed; and

No flammable material such as cotton waste, paper, cleaning rags or similar material is stored together with flammable liquids.

Water environments

24. (1) A contractor shall ensure that where construction work is done over or in close proximity to water, provision is made for—

(a) Preventing workers from falling into water; and

(b) The rescuing of workers in danger of drowning.

(2) A contractor shall ensure that where a worker is exposed to the risk of drowning by falling into the water, a lifejacket is provided to and worn by the worker.

Housekeeping on construction sites

25. Not with standing the provisions of the Environmental Regulations for Workplaces promulgated by Government Notice No.R 2281 dated 16 October 1987, as amended, a contractor shall ensure that—

(a) Suitable housekeeping is continuously implemented on each construction site, including provisions for the—

(i) Proper storage of materials and equipment; and

(ii) Removal of scrap, waste and debris at appropriate intervals;

(b) loose materials required for use, are not placed or allowed to accumulate on the site so as to obstruct means of access to and egress from workplaces and passageways;

(c) Waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out regulation 12(6); and

(d) Construction sites in built–up areas, adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons.

(e) a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fence off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects.
Stacking and storage on construction sites

26. Not with standing the provisions for the stacking of articles contained in the General Safety Regulations promulgated by Government Notice No.R1031 dated 30 May 1986, as amended, a contractor shall ensure that—

(a) A competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;

(b) Adequate storage areas are provided;

(c) There are demarcated storage areas; and

(d) Storage areas are kept neat and under control.

Fire precautions on construction sites

27. Subject to the provisions of the Environmental Regulations for Workplaces promulgated by Government Notice No.R.2281 of 16 October 1987, as amended, every contractor shall ensure that—

(a) All appropriate measures are taken to avoid the risk of fire;

(b) Sufficient and suitable storage is provided for flammable liquids, solids and gases;

(c) Smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials;

(d) in confined spaces and other places in which flammable gases, vapours or dust can cause danger—

(i) Only suitably protected electrical installations and equipment, including portable lights, are used;

(ii) There are no flames or similar means of ignition;

(iii) There are conspicuous notices prohibiting smoking;

(iv) Oily rags, waste and other substances liable to ignite are without delay removed to a safe place; and

(v) Adequate ventilation is provided;

(e) Combustible materials do not accumulate on the construction site;
(f) Welding, flame cutting and other hot work are done only after the appropriate precautions as required have been taken to reduce the risk of fire;

(g) suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order;

(h) The fire equipment contemplated in paragraph (g) is inspected by a competent person, who has been appointed in writing, in the manner indicated by the manufacturer thereof;

(i) A sufficient number of workers are trained in the use of fire-extinguishing equipment;

(j) Where appropriate, suitable visual signs are provided to clearly indicate the escape routes in the case of a fire;

(k) The means of escape is kept clear at all times;

(l) There is an effective evacuation plan providing for all—

   (i) Persons to be evacuated speedily without panic;

   (ii) Persons to be accounted for, and

   (iii) Plant and processes to be shut down; and

(m) a siren is installed and sounded in the event of a fire.

ADDENDUM E

Construction welfare facilities

28.(1) Notwithstanding the construction site provisions contained in the Facilities Regulations promulgated by Government Notice No.R. 2362 of 5 October 1990, as amended, a contractor shall, depending on the number of workers and the duration of the work, provide at or within reasonable access of every construction site, the following clean and maintained facilities:—

   (a) At least one shower facility for every 15 workers;

   (b) At least one sanitary facility for every 30 workers;

   (c) Changing facilities for each sex; and
(d) Sheltered eating areas.

(2) A contractor shall provide reasonable and suitable living accommodation for the workers at construction sites which are remote from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available.

Approved inspection authorities

29. (1) The Chief Inspector may approve as an Inspection Authority any organisation that has been accredited in terms of the provision of the Act and these regulations.

(2) The Chief Inspector may at any time withdraw any approval of an approved inspection authority, subject to section 35 of the Act.

Offences and penalties

30. Any person who contravenes or fails to comply with any of the provisions of regulations 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 and 28, shall be guilty of an offence and liable upon conviction to a fine or to imprisonment for a maximum of 12 months and, in the case of a continuous offence, to an additional fine of R200 for each day on which the offence continues or additional imprisonment of one day for each day on which the offence continues: Provided that the period of such additional imprisonment shall not exceed 90 days.

Repeal of regulations

31. The following regulations are herewith repealed:


(b) Regulations 19 and 20 of the Driven Machinery Regulations promulgated by Government Notice No.R.295 of 26 February 1988; and


Short title

32. These regulations shall be known as the Construction Regulations, 2003.
ADDENDUM A

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
Regulation 3 of the Construction Regulations, 2003

NOTIFICATION OF CONSTRUCTION WORK

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

2. Principal contractor’s compensation registration number:

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

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

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

6. Name/s of principal contractor’s sub-ordinate supervisors on site appointed in terms of regulation 6.(2).
7. Exact physical address of the construction site or site office:

______________________________________________________________

8. Nature of the construction work:

______________________________________________________________

______________________________________________________________

9. Expected commencement date: ____________________

10. Expected completion date: _______________________

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

________________________

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

________________________

13. Name(s) of contractors already chosen.

______________________________________________

______________________________________________

______________________________________________

Principal Contractor ___________________________ Date ________________

Client ______________________________________ Date ________________
ADDENDUM B

Occupational Health and Safety Specification

PROJECT NAME:

DEMOLITION, DESIGN AND RECONSTRUCTION OF THE OLD BID AIR AND MENZIES BUILDING AT CAPE TOWN INTERNATIONAL AIRPORT

ACSA CAPE TOWN INTERNATIONAL AIRPORTS
(Hereinafter referred to as the Employer)
OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

This specification shall be used in conjunction with all other applicable safety specifications, legislation and regulations in force at the time of the contract. Where unique site specifications are in force, those site specifications shall take precedence over this Specification.
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**ADDENDUMS:**

A) Pro-Forma Agreement In Terms Of Occupational Health And Safety Act 1993  
B) Notification of Construction Work

1. **SCOPE**

   This specification details the health and safety requirement associated with the Works.

2. **INTERPRETATIONS**

   Occupational Health and Safety Act, Act 85 of 1993 shall apply to this Contract. The Construction Regulations promulgated on 18 July 2003 and incorporated into the said Act by Government Notice R 1010, published in Government Gazette 25207 apply to any person involved in construction work. These regulations are hereinafter referred to as “the Construction Regulations” and the said Act as “the Act”.

   Construction work is defined as: Any work in connection with:
   - a) the erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;
   - b) the installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
   - c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or
   - d) The moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work.

3. **GENERAL**

   3.1 **Employer**

      3.1.1 The Employer will appoint the Contractor in writing for the execution of the works.
3.1.2 The Employer will take reasonable steps to ensure that the Contractor’s health and safety plan is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every month.

3.1.3 The Employer or his Agent will stop the Contractor from executing construction work should the Contractor at any stage in the execution of the works:
   a) fail to implement or maintain his health and safety plan;
   b) Execute construction work which is not in accordance with his health and safety plan;
   or
   c) Act in any way which may pose a threat to the health and safety of persons.

3.2 Contractor

3.2.1 The Contractor shall accept the appointment under the terms and Conditions of Contract. The Contractor shall sign and agree to those terms and conditions and shall, before commencing work, notify the Department of Labour of the intended construction work in terms of Regulation 3 of the Construction Regulations. ADDENDUM B of this Specification contains a “Notification of Construction Work” form. The Contractor shall submit the notification in writing prior to commencement of work.

3.2.2 The Contractor shall ensure that he is fully conversant with the requirements of this Specification. The specification is not intended to supersede the Act nor the Construction Regulations. Those sections of the Act and the Construction Regulations which apply to the scope of work to be performed by the Contractor in terms of this contract continue to be a legal requirement of the Contractor.

3.2.3 The Contractor shall provide and demonstrate to the Employer a suitable and sufficiently documented health and safety plan based on this Specification, the Act and the
Construction Regulations, which shall be applied from the date of commencement of and for the duration of execution of the works.

3.2.4 The Contractor shall provide proof of his registration and good standing with the Compensation Fund or with a licensed compensation insurer prior to commencement with the works.

3.2.5 The Contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and safety requirements, the Act and Construction Regulations.

3.2.6 The Contractor shall consistently demonstrate his competence and adequacy of resources to perform the duties imposed on the Contractor in terms of this Specification, the Act and the Construction Regulations.

3.2.7 The Contractor shall ensure that a copy of his health and safety plan is available on request to the Employer, an Inspector, Employee or Sub-contractor.

3.2.8 The Contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of this Specification, the Act and the Construction Regulations, is opened and kept on site and made available to the Employer or Inspector upon request. Upon completion of the works, the Contractor shall hand over a consolidated health and safety file to the Employer.

3.2.9 The Contractor shall, throughout execution of the contract, ensure that all conditions imposed on his Sub-contractors in terms of the Act and the Construction Regulations are complied with as if they were the Contractor.
4. **GENERAL REQUIREMENTS**

4.1 **Contractor’s Construction Safety Officer**

Before commencing work, the Contractor shall designate a competent construction safety officer (CSO) who shall be acceptable to the representative / agent to represent and act for the Contractor. The Contractor shall inform the representative / agent in writing of the name and address of the Contractor’s CSO and of any subsequent changes in the name and address of the officer, together with the scope and limitations of the CSO’s authority to act for the Contractor. The Contractor’s CSO shall make available to the Employer a telephone number at which the CSO can be contacted at any time in the event of an emergency involving any of the Contractor’s employees, or other persons at the Works.

4.2 **Log Books**

The Contractor shall keep the following log books and shall make them available to the Representative/Agent on request:

4.2.1 A record of the names and addresses of its employees who are registered as trained fire-fighting personnel and who are available on site for fire-fighting duties.

4.2.2 A record of the weekly inspection of first aid boxes.

4.2.3 A record of the weekly inspections of ladders.

4.2.4 A record of the weekly inspections of fire-fighting equipment.

4.2.5 A record of the monthly inspections of welding machines.

4.2.6 A record of the monthly inspections of oxy-acetylene equipment.

4.2.7 A record of the weekly inspections of scaffolding structures.

4.2.8 A record of the monthly inspections of builder’s hoists.

4.2.9 A record of the monthly inspections of mobile and tower cranes.
4.2.10 A record of the monthly inspections of lifting gear.
4.2.11 A record of the inspections of electrical equipment.
4.2.13 A record of the weekly inspections of plant for gauging and mixing of materials for concrete.

4.3 First Aid

4.3.1 Safety Notice Board
The Contractor shall provide a safety notice board where safety notices, site regulations concerning safe working practices and information on the nearest first aid station, ambulance, doctor and telephone numbers of the CSO and other relevant persons can be conspicuously displayed to its entire staff. The size of the notice board shall be at least 600mm x 800mm.

4.3.2 First Aid Equipment
The Contractor shall provide for its employees a stretcher for emergencies and an approved first aid box. The first aid box shall be checked weekly by a responsible person, who shall be appointed by the Contractor, and a record shall be kept of the contents. Any deficient medical supplies shall be promptly replenished by the Contractor.

4.3.3 Reporting of incidents and / or injuries
All incidents in respect of damage to Works, property or machinery, or injury to persons, shall be reported by the Contractor’s Safety Officer or Site Representative to the Representative / agent by the quickest means possible.

A mandatory incident report form, containing full details of the incident, shall be completed and submitted to the representative/ agent within twenty four (24) hours of the occurrence of the incident.

The representative/ agent shall have the right to make all or any enquiries as to the cause and result of any such incident. The Contractor shall provide the representative / agent with full facilities for carrying out such enquiries.
4.4 Risk Assessment and Safety Policy

Before commencing work the Contractor shall cause a risk assessment to be performed by a competent person appointed in writing and this shall form part of the health and safety plan. A copy of the risk assessment shall be available on site at all times for inspection.

The Contractor shall at all times carry out the Works in a manner to avoid the risk of bodily harm to persons or risk of damage to any property. The Contractor shall take all precautions, which are necessary and adequate to eliminate any conditions which contribute to the risk of injury to persons or damage to property. The Contractor shall continually inspect all work, materials and equipment to discover and determine any such conditions and shall be solely responsible for the discovery, determination and elimination of such conditions.

During the period of this Contract, the Contractor shall be responsible for the safe storage of all materials and equipment required for execution of the Contract, and for disposal of all non-usable waste material in an orderly manner.

All materials, whether stored on the construction site or within the Contractor’s designated area, shall be stored neatly and safely to prevent possible injury to any personnel. The material shall be stored to facilitate safe access to, and removal of the material from the storage area.

Any flammable material, such as paint, diesel fuel and oil, shall be stored in lockable non-combustible structures, which shall be clearly marked to indicate the hazardous nature of the materials stored within. The flammable materials stores shall be located in safe areas away from hazardous surroundings and adequate and suitable fire-fighting equipment shall be provided within easy reach of the materials stores.

4.5 Danger Areas

The Contractor with appropriate tape shall demarcate all danger areas and hazard notices to prevent unauthorized persons entering the danger area.
4.6 **Hazard Notices**

The Contractor shall display hazard notices in all areas identified in the risk assessment as potentially hazardous.

4.7 **Personal Protective Clothing**

The Contractor shall provide the necessary personal protective clothing for his employees in hazardous areas, appropriate to the nature of the hazard identified in the risk assessment.

4.7.1 **Hard Hats**

All employees of the Contractor shall wear hard hats in areas where appropriate hazard notices are displayed. The representative/ agent shall have the right to ban certain colours if they are similar to the employer’s identifying colours. Hard hats shall not be painted or otherwise defaced.

4.7.2 **Eye Protection**

Suitable eye protection shall be worn in areas where appropriate hazard notices are displayed, or when grinding, chipping, breaking, drilling, arc-welding, cutting with oxyacetylene equipment of similar activities are taking place.

4.7.3 **Hearing Protection**

Suitable hearing protection shall be worn in areas where appropriate hazard notices are displayed.

4.7.4 **Foot Wear**

All employees of the Contractor shall wear undamaged, laced-up safety boots or safety shoes, suitable for the intended purpose, in prescribed areas where appropriate hazard notices are displayed.
4.7.5 **Gloves**
All employees of the Contractor’s shall wear suitable protective gloves in areas where appropriate hazard notices are displayed or when handling hot or hazardous materials or chemicals.

4.7.6 **Clothing**
All employees of the Contractor shall wear suitable protective clothing when working in proximity of machinery, power tools, hazardous materials or chemicals.

4.8 **Road Traffic Ordinance / Transportation Act**

4.8.1 The Contractor shall ensure that drivers of motor vehicles are in possession of a driver’s license, valid for the class of vehicle which they are required to drive, and shall produce the license on request.

4.8.2 The Contractor shall not permit any driver to be in control of a vehicle at the Works while under the influence of alcohol or drugs.

4.8.3 All vehicles of the Contractor shall display a name board bearing the Contractor’s name. Hired vehicles shall bear an identifying sticker.

4.9 **Overhead Power lines**

Regulations of the Electricity Supply Authority in connection with prohibition of operations in the vicinity of overhead power lines shall be observed by the Contractor at all times.

4.10 **Machine Guarding**

All power tools and machinery driven by belts, gears, ropes, chains, couplings and similar drives shall be adequately guarded. The Contractor shall prohibit the use of any equipment with a damaged, missing or inadequate guard.
4.11 Concrete Mixing Equipment

No Contractor shall use or cause to be used any plant for the storage, gauging and mixing of materials for concrete unless:

a) The aggregates of different nominal size are separately stored in such a way that segregation, intermixing of different materials and contamination by foreign matter is prevented.

b) The storage area shall be protected from unauthorized entry by an adequate barrier. A safe and tidy approach shall be maintained to the aggregate storage area.

c) The Contractor shall appoint operators skilled in the operation of the plant.

d) On a weekly basis, a competent person shall inspect the plant. The inspections shall include a check of the calibration of all the measuring devices and shall be recorded in a logbook, which shall be made available to the Representative/Agent on request.

4.12 Ladders

4.12.1 Every ladder shall be:

a) Of good construction, sound material and adequate strength and suitable to the purpose for which it is used (e.g. electricians shall use suitable insulated ladders)

b) Fitted with non-skid devices at the bottom of the stiles or with hooks or similar devices at the tops of the stiles.

4.12.2 Except for extension ladders, no ladder shall be used which is longer than 4,5m and no ladder shall have its reach extended by tying together two or more ladders.

4.12.3 All ladders shall be inspected weekly and a log shall be kept of the inspections.

4.13 Scaffold Framework

4.13.1 Scaffold standards shall be firmly supported and secured against displacement and shall be kept vertical.

4.13.2 No Contractor shall use, or cause to be used, any scaffold unless it is inspected by a
competent person at least once a week and after inclement weather.

5. **SPECIAL REQUIREMENTS**

5.1 **Excavation/Shoring**

5.1.1 The Contractor shall ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing.

5.1.2 The face of an excavation shall not be undercut.

5.1.3 All excavations, irrespective of depth, shall be adequately screened off with barrier tape or some other suitable means of warning persons of a hazardous area. Where the depth of the excavation exceeds 2 m, a wooden or steel barrier shall also be erected around the excavation, particularly at the end of the working shift and at the start of weekends and holidays to prevent persons from falling into the excavations.

5.1.4 No construction materials shall be allowed to fall into an excavation. A safe and tidy approach shall be maintained around all excavations.

5.1.5 Adequate shoring, according to the recommendations of SABS 1200, Section D, 1988, shall be provided in the excavation by the Contractor when necessary. The shoring shall be approved by the Representative/Agent before excavation work continues.

5.2 **Formwork and Support Work**

The Contractor shall ensure that:

a) All formwork and support work operations are carried out under the supervision of a competent person who has been appointed by the Contractor in writing for that purpose.

b) all formwork and support work structures are adequately designed, erected, supported, braced and maintained so that they will be capable of supporting all anticipated vertical and lateral loads that may be applied to them and also that no loads are imposed onto the structure that the structure is not designed to withstand;
c) the foundation conditions are and remain suitable to withstand the load caused by the formwork and support work structure and any imposed loads such that the formwork and support work structure are stable;

d) all formwork and support work structures are inspected by a competent person, who has been appointed by the Contractor in writing for that purpose, immediately before, during and after, the placement of concrete of any other imposed load and thereafter on a daily basis until the formwork and support work structure has been removed and the results have been recorded in a register and made available on the site of the Works; and

e) Upon casting concrete, the support work or formwork structure should be left in place until the concrete has acquired sufficient strength to support safely, not only its own load, but also any imposed loads, and not removed until authorization has been given by the competent person contemplated in sub-paragraph (a).

5.3 **Prevention of Uncontrolled Collapse**

The Contractor shall ensure that :-

a) All reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying of construction work; and

b) No structure or part of a structure is loaded in a manner that would render it unsafe.

5.4 **Safe Working Loads**

The Contractor shall ensure that:-

a) the safe working loads of hoists, load-bearing beams and cranes are prominently displayed at all times,

b) the safe working loads are not exceeded under any circumstances,

c) All lifting gear is marked with a unique identity number and recorded in a register.

5.5 **Electrical Equipment and Procedures Used by the Contractor**

Contract
Reference no. CIA6063/2019/RFP
5.5.1 All electrical equipment shall be regularly inspected by a qualified electrician, who shall be appointed by the Contractor, and the inspections shall be logged. The Representative/agent shall determine the frequency of inspections. A record of the inspections shall be kept and shall be made available to the Representative/agent on request.

5.5.2 The Contractor shall ensure that all his electrical equipment conforms to operational and safety requirements.

5.5.3 All earth leakage units shall be tested at intervals of not more than one month and signed for by a qualified electrician.

5.6 Commissioning Safety Precautions

The Contractor shall ensure that wherever repairs, adjustments or any other work are undertaken on any plant or machinery, the power supply is switched off, disconnected or the plant/ machinery disengaged until the work or repairs have been completed.

5.7 Toxic Materials

The Contractor shall exercise all necessary care in the handling of toxic compounds and shall be able to identify the major chemical components in the event of medical treatment being required.

5.8 Hazardous Chemicals and Materials

a) The Contractor shall provide suitable adequate protective equipment when working in an area where hazardous chemicals and materials are being used.

b) The Contractor shall ensure that its employees have familiarized themselves with the hazardous material data sheets applicable to the specific site as well as the location of the firefighting equipment, safety showers/ baths and other washing facilities, prior to the commencement of work.

5.9 Indemnity of Employer and his Agents
a) The ADDENDUM to this Contract Document contain a “Mandatory Form of Authority and Agreement in terms of Section 37 (2) of the Occupational Health and Safety Act, No.85 of 1993 which agreement shall be entire into and duly signed by both the Employer and Contractor prior to commencement with work. A copy of the signed agreement shall be included in the Contractor’s health and safety plan.

b) Any acceptance, approval, check, certificate, consent, examination, inspection, instruction, notice, observation, proposal, request, test or similar act by either the Employer, any of his agents or the representative /agent including lack of disapproval shall not relieve the Contractor from any responsibility he has under the Act and the Construction Regulations, including responsibility for errors, omissions, discrepancies and non-compliance.
ADDENDUM “A”

PRO-FORMA AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT 1993

PRO-FORMA AGREEMENT IN TERMS OF

OCCUPATIONAL HEALTH AND SAFETY ACT 1993 – SECTION 37 (2)

NEW CONSTRUCTION SAFETY REGULATIONS

The above-mentioned regulations were promulgated in the Govt. Gazette on Friday, 18 July 2003 under the Occupational Health & Safety Act (85 of 1993) and are now in force.

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act 1993 (Act 85 of 1993, hereinafter referred to as the Act), that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:

(a) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all the relevant provisions of the Act and the regulations promulgated in terms of the Act, and the Employer’s Health and Safety Specifications included in the contract documents.

(b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations and the Employer’s Health and Safety Specifications included in the contract documents will be complied with in all respects.

(c) In relation to any work or activity performed by the Contractor, his workmen or any other person for whose acts or omissions the Contractor is responsible in terms of the Contract, the Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from itself being obliged to comply with any of the aforesaid duties, obligations and prohibitions.

(d) The Contractor agrees that any duly authorised officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraphs (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records held by the Contractor.

(e) The Contractor shall be obliged to report forthwith in writing to the Representative/Agent full details of 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 Contract.

(f) Forward “safety meeting” minutes to the representative/Agent.

For the Employer: ___________________________ Date: ___________________________

Witnesses:  1) : ___________________________  2) ___________________________

For the Contractor: ___________________________ Date: ___________________________

Witnesses:  1) : ___________________________  2) ___________________________
ADDENDUM “B”

NOTIFICATION OF CONSTRUCTION WORK

NOTIFICATION OF CONSTRUCTION WORK
(Regulation 3 of the Construction Regulations, 2003)

1. CONTRACTOR

1.1 Name and postal address of Contractor:

__________________________________________________________

__________________________________________________________

1.2 Name and telephone number of Contractor’s contact person:

__________________________________________________________

1.3 Contractor’s compensation registration number:

__________________________________________________________

1.4 Name and telephone number of Contractor’s Construction Supervisor:

__________________________________________________________

1.5 Physical address of the construction site or site office:

__________________________________________________________

__________________________________________________________

1.6 Estimated number of Subcontractors on the construction site accountable to the Contractor:

__________________________________________________________
2. **EMPLOYER**

2.1 Name and postal address of Employer:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2.2 Name and telephone number of Employer’s Principal Agent:

________________________________________________________________________

3. **DESIGN CONSULTANTS**

3.1 Name and postal address of design consultants:

3.1.1 Construction project managers:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3.1.2 Architects:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3.1.3 Structural engineer:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3.1.4 Electrical engineer:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
3.1.5 Mechanical engineer:
________________________________________________________________________
________________________________________________________________________
3.1.6 Civil engineer:
________________________________________________________________________
________________________________________________________________________
3.1.7 Security engineer:
________________________________________________________________________
________________________________________________________________________
3.1.8 Other (if any) :
________________________________________________________________________
________________________________________________________________________

3.2 Name and telephone number of design consultant’s contact person :

3.2.1 Construction project managers :
________________________________________________________________________
3.2.2 Architects:
________________________________________________________________________
3.2.3 Structural engineer:
________________________________________________________________________
3.2.4 Electrical engineer:
________________________________________________________________________
3.2.5 Mechanical engineer:
________________________________________________________________________
3.2.6 Civil engineer:


3.2.7 Security engineer:


3.2.8 Other (if any):


4. THE WORKS

4.1 Nature of the works:


4.2 Commencement date:


4.3 Completion date:


Contractor: ___________________________ Date: ___________________________

Employer: ___________________________ Date: ___________________________
Appendix A – Project Specification

C3: SCOPE OF WORKS

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C3.2: ENGINEERING

C3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

The responsibilities for design and related documentation are as follows:

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C3.2.2 EMPLOYER’S DESIGN

The extent of the Employer’s typical design is shown on the construction drawings.

C3.2.3 CONTRACTOR’S DESIGN BRIEF

The design brief is defined in the scope and included in the technical specification.

C3.2.4 DRAWINGS

Drawings are required for the Temporary Works to be designed by the Contractor.

The reduced drawings that form part of the tender documents shall be used for tender purposes only. The Contractor will be issued with an A0 paper copy and PDF file of each of the drawings required for construction. The Contractor shall, at his own expense, produce all further prints required for the construction of the Works.

The Contractor shall not use the drawings for any purpose other than the execution of the works.

Only figured dimensions on the drawings shall be used, and drawings shall not be scaled.

The Engineer shall supply any figured dimensions which have been omitted from the drawings.

The Engineer may issue additional drawings as necessary to the Contractor from time to time during the progress of the works. The Contractor shall timeously notify the Engineer of the priority in which drawings and details are required.
Before a Certificate of Completion will be issued, all as-built data must be provided to the Engineer on completion of the Permanent Works. The data must be provided in electronic form (as per the Engineer’s format) or where appropriate marked up on a set of drawings. Any information in the possession of the Contractor necessary for the Resident Engineer to complete his as-built drawings shall be supplied to the Resident Engineer on a regular basis and all information must be delivered before a Certificate of Completion will be issued.

C3.2.5 DESIGN PROCEDURES

No design procedures are specified, all design procedure to be confirmed by the Engineer

C3.2.6 CONSTRUCTION IN CONFINED AREAS

Working space for some of the work to be carried out under this contract is restricted. The construction method used in these confined areas largely depends 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, and that the rates and prices tendered will be deemed to include full compensation for difficulties encountered, while working.
C3.4: CONSTRUCTION

C3.4.1 WORKS SPECIFICATIONS

(a) Applicable Standard Specifications


The Standard Specifications forming part of this contract have been written to cover all phases of work usually encountered on road and bridge contracts and may therefore cover items of work not encountered in this Project contract.

ASAQS Model Preambles of Trade 2008 for all Building related work.

ASAQS Standard System of measurement for all Building related work.

The Contractor is responsible for ensuring that he is thoroughly familiar with all the amendments and corrections before submitting his tender.

(b) Applicable National and International Standards

The Works must comply with certain National and International Standards. These include:

- SANS (SABS)

Where required, compliance with these and other National and International have been specified in the Standard and Project Specifications.

(c) Project Specifications

In certain clauses, the Standard Specifications allow a choice to be specified in the Particular (Project) Specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a Contract. Details of such alternatives or additional requirements applicable to this Contract are contained in the Particular (Project) Specifications (C3.6 ). It also contains some additional specifications required for this Contract.

(d) Certification by Recognized Bodies

Where required, South African Bureau of Standards (SABS) must undertake the certification of items for inclusion in the Works.

C3.4.2 PLANT AND MATERIALS

(a) Plant and Materials supplied by the Employer

Nil
(b) Materials, Samples and Shop Drawings

Where required, requirements for proof of compliance with materials specifications, submission of samples of materials and finishes, requirements for shop drawings, are stated in the standard or project specifications. This will also apply to the subcontracts.

All materials used in the works shall, where such mark has been awarded for a specific type of material, bear the official mark of the SANS (SANS). Written proof shall be obtained from the engineer or for any materials not bearing the official mark of the SANS.

C3.4.3 CONSTRUCTION EQUIPMENT

(a) Requirements for Equipment

Where applicable, minimum requirements for equipment are specified in the Standard and Project specifications.

(b) Equipment Provided by the Employer

Nil

C3.4.4 EXISTING SERVICES

Specifications related to existing services are provided in the Project Specifications (Section C3.6.2)

C3.4.5 SITE ESTABLISHMENT

(a) Services and Facilities Provided by the Employer

Approval for the establishment of a construction camp must be obtained from ACSA. It will remain the contractor’s responsibility to maintain safety clearances from the existing National Key Point (NKP) Fenceline and Perimeter Intruder Detection System (PIDS) Fencelines respectively when planning the layout of the camp. The contractor has to ensure that his camp is properly fenced off, screened and secured. Municipal services are available as per the civil Engineer’s drawings, and it will be the contractor’s responsibility to arrange for the necessary installation, metering and COC’s together with any administrative costs for providing the said connections. Tariffs will be as per municipal or pro-rata ACSA rates, attached as Appendix E in the Procedure Manual of the set of documents.

The Contractor is responsible for all arrangements for obtaining all necessary approvals, establishment and subsequent removal and reinstatement of his construction camp.

The contractor should allow provide for chemical toilet facilities.

Other contractors may in part also use the proposed area. The contractor must at all time limit his personnel, plant, equipment and materials to the Contractor's site or the working areas as approved by the Principal Agent. No personnel shall be accommodated on airport property.
Only guards approved by the Employer and on duty may be on site at all times. The contractor shall only use the designated gate(s) for access purposes to the construction site.

The area designated by the Principal Agent can be used for stockpiling material for use in the works and for temporary parking of plant and equipment. This location is to be confirmed by the Employer.

All regulations and local authority ordinances, as regards smoke emissions and noise abatements shall apply and compliance will be enforced as well as height restrictions and any required obstacle markers.

The Contractor is to familiarise themselves with the ACSA requirements for working within the General Aviation and Perimeter Intruder Detection System (PIDS) enclosed areas respectively.

(b) Facilities Provided by the Contractor

The contractor shall make his own arrangements for the supply of electrical power, water Telecommunication services, ablution facilities, sewer services, first aid facilities and other services, the payment thereof and all reinstatements required upon completion. No direct payment will be made to the Contractor for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

The contractor will be required to erect a security fence around the construction camp and temporary parking area for plant and equipment. The cost thereof is regarded to be included in the relevant rates for establishment on site.

The storage of fuels in tanks may be kept in the contractor's camp subject to the regulations of the Airport authorities that require a berm or wall around the installation sufficient to retain the capacity fuel of the tanks.

The Contractor shall make his own arrangements for telephone and facsimile facilities. Cellular phones will be acceptable, but the Contractor must obtain airside permits from ACSA at his own cost.

(c) Other Facilities and Services

The Contractor shall be responsible for the removal of all waste generated from the airport property and the proper disposal thereof elsewhere at his own cost.

If required by the Engineer, the Contractor shall supply portable chemical toilet facilities next to the construction site for his staff as well as for the Engineer's supervisory staff. These facilities must be erected and removed on a daily basis and regularly serviced to the satisfaction of the Airport Authorities and the Engineer.

(d) Vehicles and Equipment
The requirements (e.g. permits, etc.) for vehicles and drivers operating within the General Aviation and Perimeter Intruder Detection System (PIDS) enclosed areas at Cape Town International Airport are specified in the Procedure Manual.

**Advertisng Rights**

Only one sign board for the Contractor and his subcontractors may be erected at the entrance to the construction camp.

(e) **Notice Boards**

A construction notice board complying with the SAIA specifications must be provided and erected at a position to be agreed with the Principal Agent and ACSA. The cost of the supply and erection of this notice board must be included in the establishment cost of the Contractor.

**C3.4.6 SITE USAGE**

Restrictions on the site usage are stated in the Procedure Manual for Working within the General Aviation and Perimeter Intruder Detection System (PIDS) areas.

**C3.4.7 ALTERATIONS, ADDITIONS, EXTENSIONS AND MODIFICATIONS TO EXISTING WORKS**

The Contractor must satisfy himself that the dimensional accuracy, alignment, levels and setting out of existing components are compatible with the proposed Works, where applicable. Where this is not the case the Engineer’s Representative must be notified in writing at the earliest possible time.

**C3.4.8 WATER FOR CONSTRUCTION PURPOSES**

The Contractor must install three compound specific boreholes at the outset and have the water quality tested and approve for construction and potable uses. Water use is to be monitored and reported on a monthly basis. All construction related waste water to be re-used and/or recycled to the Employer’s approval and to the approved Environmental Management Plan.

**C3.4.9 SURVEY CONTROL AND SETTING OUT OF THE WORKS**

The Contractor shall place beacons in concrete, marked and certified by a professional land surveyor. Beacons shall be check-levelled during construction to confirm the accuracy when instructed by Engineer.
C3.5: MANAGEMENT

C3.5.1 MANAGEMENT OF THE WORKS

(a) Planning and Programming

The Contractor’s programme must be based on the time for completion specified below and the Working Times defined in the Procedure Manual for Working Airside.

PROJECT COMPLETION TIME: 10 MONTHS FROM COMMENCEMENT DATE, IF THE PROJECT FALLS OUTSIDE THE BUILDER’S (YEAR-END) BREAK

The Contractor must draw up his own programme that complies with the project phasing requirements as shown on the construction drawings and also with all requirements of this project and which suits his own resources. Detailed specifications for the compilation and management of the construction programme are stated in Section C3.6 (Clause B1204) and in Clause 4 of the Airside Manual.

(b) Sequence of the Works

The sequence of the Works will be determined by the logical order of activities as illustrated in the construction drawings and the specified time for completion above. It is important to note that:

(a) Some non-critical activities can be done in a different phase to those highlighted in the design drawings as long that approval has been obtained from AM and subject to availability of escort from ACSA.

(b) A minimum of seven (7) days advance notice from the contractor is required to switch between work areas.

(c) Methods and Procedures

The methods and procedures that must be complied and include but are not limited to:

- Civil Works Methods and Procedures in the Project Specifications (C3.6).
- Occupational Health and Safety Specifications (C3.7.1).
- Environmental management plan (C3.7.2).

(d) Quality Plans and Control

The requirements for Quality Plans and Control are stated in Section B1205 of the Project Specification (C3.6).
(e) **Construction Method Statement**

Within 7 days of the Commencement Date the Contractor shall submit a Construction Method Statement to the Principal Agent for approval by the Employer. Once approved, this Statement will form part of Appendix C of the Procedure Manual.

No work on site will be allowed until the Employer has approved this Construction Method Statement.

The Method Statement shall include:

i. All measures to be implemented to comply with the requirements of the Procedure Manual for Working within the General Aviation and Perimeter Intruder Detection System (PIDS) areas.

ii. All measures to be implemented to comply with the requirements of the OHS Act.

iii. A contingency plan to deal with interruptions of shifts by inclement weather, plant breakdowns or emergency closures of the work areas.

iv. Special measures, such as availability of back-up plant, to be implemented in normal shifts to comply with the Project Specifications.

v. Measures and equipment that will be used on site to limit the ingress of water into the excavations and to remove rain water from the excavations.

vi. Measures to protect services (above and below surface) during construction.

vii. Procedures to ensure the whole work area are safe before removing staff or handing over of the site at the end of the each work shift.

viii. A watchman to remain on site of excavations/construction with telephone contact to the contract manager in case of emergency.

ix. The cost of complying with the ACSA approved method statement is deemed to be covered by the tendered rates for the Contractor’s General Obligations.

(f) **Environment**

The Environmental requirements are specified in Generic Specifications (Section C3.7.2)

(g) **Accommodation of Traffic on Roads and Accesses used by the Contractor**

ACSA staff and other stake holders who use the access road to the construction site and camp are required to be co-ordinated by the contractor on a daily basis (to be minuted at the contractors daily meeting) on the usage of the roads by the Contractor’s vehicles and construction equipment.
(h) **Testing, Completion, Commissioning and Correction of Defects**

Procedures for testing, completion, commissioning and correction of defects will be provided to the Contractor by the Engineer on site.

The cost of complying with these requirements is deemed to be covered by the tendered rates for the Contractor’s General Obligations.

(i) **Format of Communications**

All instructions or requests need to be confirmed in writing through:

- Site instructions.
- Requests for inspections.

(j) **Key Personnel**

The Contractor, Professional Team and Employer must compile a schedule of their Key Personnel with their contact numbers and keep it updated as per requirements for the contact list in the Procedure Manual for Working within the General Aviation and Perimeter Intruder Detection System (PIDS) areas. The list must be made available to the Professional Team, Employer and Contractor.

(k) **Management Meetings**

The following formal meetings will be held at the office of the Contractor’s Representative between the representatives of the Employer, professional team and the Contractor:

- Monthly site meeting (Date and time to be agreed by attendees).
- Monthly technical meeting (Date and time to be agreed by attendees).

The representatives must have the necessary delegated authority in respect of aspects such as planning, change management and health and safety.

(l) **Daily records**

The Contractor must keep daily records of resources (people and equipment employed) and site diaries in respect of work performed on the site. A copy of the previous day’s daily record must be provided to the Engineer on a daily basis.

(m) **Bonds and Guarantees**
Original copies of the bonds and guarantees must be lodged at the office of ACSA, Cape Town International Airport, and one copy of each must be kept on site with the Engineer’s representative. On release, the bond and guarantees can be collected from ACSA, UTN.

(n) **Permits**

All requirements in connection with the application for and usage of permits are stated in the Airside Manual

(o) **Insurance Provided by the Employer**

For information on the Employer Insurance, refer to Clause 35.1 Section C1.2.

**C3.5.2 HEALTH AND SAFETY**

(a) **Health and Safety Requirements and Procedures**

Health and Safety requirements and procedures are presented in Annexure B, Section C3.7.1.

(b) **Barricades and lighting**

Requirements for the provision and usage of barricades and lighting are stated in the Procedure Manual and Sections 1300 and 1500 of the Specifications.

(c) **Traffic Control**

Safety requirements and procedures where the Contractor has occupation of taxiways, runways or roads are stated in the Procedure Manual and **Section 1500 of the Specification**.
GROUND SUPPORT EQUIPMENT WORKSHOPS AT CAPE TOWN INTERNATIONAL AIRPORT

C3.6: PARTICULAR (PROJECT) SPECIFICATIONS
C3.6.1 ARCHITECTURAL

ACSA GSE PROJECT SPECIFICATION

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ACSA GSE PROJECT SPECIFICATION

GENERAL

All dimensions and levels to be checked on site and correlated with architects drawings and details before construction commences and any discrepancies are to be reported immediately to the architect.

All details and dimensions shown on these drawings are subject to confirmation on site and during construction.

It is the contractor’s responsibility to ensure that he/she understands and complies with all relevant drawings and specifications and is adequately experienced to undertake all aspects of the work safely.

All details and dimensions pertaining to any existing structures are to be confirmed on site by the contractor and the engineer is to be immediately informed of any unexpected aspects pertaining to them.

Gridlines and site boundaries are to be set out on site by a qualified and professionally registered land surveyor who has adequate professional indemnity cover.

All products specified for use are to be used strictly according to manufacturer’s instructions and specifications at all times.

The contractor is at all times to be fully responsible for quality control on site ensuring strict compliance with all drawings, details and specifications issued for construction by the professional team.

The contractor is to comply at all times with all relevant municipal regulations and bylaws in the area of the site and is to ensure that he has a set of approved building plans on site at all times.

EARTHWORKS

2.1 BENCH MARK

Set up a site datum level based on an established benchmark, as directed by the architect/principal agent.

Maintain and protect this benchmark.

2.2 SITE CLEARANCE

Permits

Obtain, before commencing site clearance, all necessary permits for carrying out the work and pay all fees.

Obtain a rodent extermination certificate.

Hand over all permits, receipts and certificates to the architect/principal agent for safekeeping.

Demolition

Demolish buildings and structures, where applicable, as shown on drawings, or as specified.

Remove all material and rubble within one metre of the perimeter of the building, including floors, screen walls, services and manholes, down to 150 mm below ground level.

Dust and noise

Use methods that keep dust, noise and vibration to acceptable levels, and which leave adjoining structures safe, to the approval of the local authority.

Services
Give notice to the architect/principal agent and the local authority regarding the disconnection of electric cables, water pipes and telephone cables, and leave safe.

Cut sewer-pipes and seal to the approval of the local authority and the relevant ACSA M&E authorities.
Trees etc.
Remove trees and shrubs, vegetable matter, rubble, garbage, wire fences etc., all as shown on drawings or as directed by the architect/principal agent.

Remove tree roots where these occur under buildings or paving under construction. Fill stump holes with approved filling material as specified in this section.

Protect trees to be preserved.
Topsoil
Remove topsoil over the building area to a depth of 150 mm and temporarily store on site for later use as garden soil.
Recovered materials
Recover materials for re-use as specified.
Ownership of demolished material
Demolished material is the property of the contractor. No credit must be allowed to the employer, unless otherwise specified.
Cleaning site at completion
At completion of the works, dig up concrete or mortar mixing platforms, and clean the site of all surface and buried rubble.

2.3 DEFINITIONS OF EXCAVATED MATERIAL
Classification of material excavated by hand
Soil means soil which can be removed with hand tools and includes sand, made-up ground, gravel, clay, shale and loose stones not more than 75mm wide
Soft rock means rock which can be loosened by hand pick axe or crow- bar and includes hard shale, compact gravel-stone, stone of equal hardness and boulders at least 75 mm wide and with a volume of not more than 0,03 m³
Hard rock means granite, quartzite, sandstone, solid shale, slate and rock just as hard or harder, as well as boulders with a volume of at least 0,03 m³
Classification of material excavated by machine
Soft excavations means excavations in material which can be efficiently removed by
Back acter with flywheel power of approximately 0.10 kW per millimetre of tined-bucket width
Without the assistance of pneumatic tools
Rubber-tyred front-end loader with a mass of about 15 t and flywheel power of ± 100 kW, without ripping or stockpiling
Back acter with flywheel power of more than 0.10 kW for every millimetre of tined-bucket width
With the assistance of pneumatic tools
Be loaded by rubber tyred front end loaders with a mass of about 15 t and flywheel power of ± 100 kW, without ripping or stockpiling
Hard rock excavations means excavations in material which cannot be efficiently removed without blasting, or by wedging and splitting.

Boulder excavations class A means excavation in material that contains more than 40% by volume of boulders between 0.03 m³ and 20 m³ in size, in a matrix of softer material or smaller boulders.

Boulder excavations class B means excavation in material that contains less than 40% by volume of boulders between 0.03 m³ and 20 m³ in size, in a matrix of softer material or smaller boulders.

2.4 EXCAVATIONS

Class of excavation material assumed

Assume all excavations are in material classified as soil or as soft excavations, unless specified differently in the bill of quantities.

Notify the architect/principal agent if harder material is encountered.

Blasting

If blasting is required, obtain written approval from the architect/principal agent and carry out the work in compliance with the latest state and local authority regulations.

Excess soil

Spread excess soil over the site, keep aside for filling later if required, or cart away to a suitable dumping site to be found by the contractor, outside the boundary of the site, as directed by the architect/principal agent.

Bulkling

Provide for bulking of excavated material.

Excavation for foundations

Excavate for foundations to at least 300 mm below the level of the adjoining natural ground, or down to firm natural ground or to solid rock, or to a depth as specified.

Only the engineer & principal agent will determine firm natural ground.

If excavations for foundations are dug too deep, fill up with 10 MPa concrete at own expense.

Form steps in trench bottoms with horizontal and vertical surfaces where necessary, except where there is solid rock. Steps must be in multiples of brick or block courses.

Clean the bearing area of solid rock and provide steps or dowels to prevent lateral movement.

Give sufficient notice to the architect/principal agent for approval of foundation excavations before concrete is cast.

Reducing levels

Excavate to reduced levels as specified or to a depth determined by the structural and civil engineers.

Risk of collapse

Maintain all excavated faces up to 1.5 m deep where necessary or when instructed by the architect/principal agent, against collapse by means of planking, strutting or other appropriate methods.
Maintain excavations deeper than 1.5 m in accordance with government safety regulations.

Storm and ground water
Protect excavations against flooding by storm water or seepage by pumping or baling.

2.5 FILLING
Filling material
Use approved clean earth or gravel without clay or organic matter for general filling work under floors, paving, etc.

Provide test results of the filling material well in advance of ordering, if so directed by the engineer.

Allow for reduction of volume as a result of compaction.

Use hardcore consisting of broken stone, brick or concrete ranging in size from 25 to 75 mm, well consolidated by ramming, under floors or against basement walls, where specified, and with the approval of the structural engineer.

Blinding material
Use sufficient sand, fine gravel or other approved fine material to fill voids and provide a close smooth surface of hardcore which is to receive concrete

Surfaces that are to receive damp proof membranes and where there is likelihood that the membrane will be damaged where specified.

Inspection of foundation excavations
Do not fill around the foundation structure before this has been inspected and approved by the structural engineer.

Filling
Spread, level and compact filling under floors at optimum moisture content in layers not exceeding 150 mm thick, to a density of at least 90 % MOD AASHTO.

Topsoil
After the site has been cleaned at completion of the works, spread, level and lightly consolidate topsoil temporarily stored on site, or carted in as directed, in one layer at least 75 mm thick.

Storm water removal
Shape ground levels to avoid the damming of storm water, as directed by the Civil Engineer.

2.6 TERMITE CONTROL
Soil poisoning
Poison the soil against the inside of foundation walls and under floors with Chlordane soil insecticide to comply with SANS 1165:

By a certified pest control contractor
Not when soil is excessively wet
Do not disturb treated surface
Do not bury scraps of timber in ground fill
Treat foundation trench bottoms before casting
Treat every 300 mm backfill before compacting
Treat full length of pipe and cable trenches inside the building and for a distance of 3 m outside the building.

Take necessary health precautions on site.

Guarantee

Obtain a written guarantee from the pest control contractor for ten years for the effectiveness of the treatment, and hand over to the architect/principal agent.

CONCRETE, FORMWORK AND REINFORCEMENT

Refer to Structural Engineer's specification for all concrete and formwork specifications, tolerances and degree of accuracy.

Refer to construction drawings for formwork tie positions and concrete panel/joint lines. All off-shutter concrete to be fair-face finish grade 1 quality.
MASSONRY WALLING
Clay bricks
Clay bricks to comply with regulations as contained in SANS 227. This includes allowable dimensional and warpage tolerances, degrees of efflorescence, brick strength and irreversible moisture expansion.

Brickwork to comply with SANS 0249: Masonry walling.
Face bricks to be used are to be suitable for use in Exposure Zone 3 as contained in SANS 0249.
External cavity walls and double skin and single-skin internal walls as indicated on plan.
NFP (Non-face plaster) bricks to be used in areas where a plastered finish will be applied.

Bond
Use full bricks wherever possible.
Build common brickwork in stretcher bond. Build half-brick walls, skins of external walls in stretcher bond.
External walls to be 280mm cavity walls consisting of two parallel walls of masonry units built side by side and tied to each other with wall ties, with a cavity width of not less than 50mm.
Weepholes shall be formed in the outer leaf of the walling, at intervals not exceeding 1 000mm and immediately above damp-proof courses, by leaving perpend joints open.
Where ducts, sleeves or pipes are laid across a cavity, the construction shall prevent the transmission of moisture.
The cavity shall be kept free from mortar and debris as the work proceeds. Ties shall be cleaned of mortar droppings. Mortar droppings reaching the base of the cavity shall be removed daily through temporary openings. Care should be taken not to damage the damp proof course membrane when cleaning the cavity.

All brickwork is to be connected to reinforced concrete columns by means of galvanized hoop-iron straps shot-fired into concrete through 10mm jointex at a minimum of every 4th course. Hoop-iron is to be built a minimum of 400mm into brickwork unless otherwise specified by the Structural Engineer.
Two continuous layers of brickforce are to be laid in the first two courses below the first floor and beam soffit level and at the eaves wall plate level.
All brickforce to have at least 300mm overlap at all joints.

Brickforce is to be laid in every 4th course of brickwork.

Brickforce longitudinal reinforcement to have a minimum diameter of 2.8mm
Brickforce shall be manufactured from pre-galvanised wire. Galvainsing to be accordance with SANS 935 for a grade 2 coating.

Rod reinforcement shall be galvanized in accordance with SANS 935 for a grade 2 coating or SANS 121, as appropriate.

Wall ties 2, 5 ties/m2, as per SANS 10400 in standard cavity widths up to 75mm. All cavities greater than 75mm are to have vertical twist ties.

All brickwork to comprise bricks. Built in accordance with SANS 10164, in class 2 mortar.

Wall ties to have a minimum thickness of galvanizing of 750g/m2

All internal non-load bearing brickwork to stop 20mm below soffit of slabs and sealed in accordance with the architectural and engineering specifications.

Laying bricks and blocks
Lay bricks on a full bed of mortar.
Fill all vertical joints solid.
Construct corners of walls accurately. Check height of courses with a gauge rod. Joints must be 10 - 12mm thick.
Carry up work evenly.
Keep perpends and angles plumb.
Wet clay bricks before laying only if they are highly porous.
Flush off joints in common brickwork.
Rake out joints 10 mm deep where a mechanical key is required for plastering.
Building in
Set up and securely strut door, window and cupboard frames and build in solid with the build-in lugs provided.
Chasing depth limits: Vertical chases in solid units should not exceed 25mm deep by 40mm wide.
Horizontal chasing is to be avoided where possible. A maximum of 750mm long Horizontal chases will be accepted.
Grout pressed steel doorframes solid at backs as work proceeds.
Build in all electrical conduits, boxes and distribution boards. Ensure boxes and boards are built in level, plumb and at the specified depth in the wall and height above floor level.
Contractor to ensure that DPC’s are sandwiched in mortar joints when building in.
Movement joints
Movement joints to be allowed for as per the Engineer and Architect’s requirements.
Reinforced Brick Lintols
Build reinforced brick lintels as follows, suitable for light (class A or C) or heavy (class B) roofs, with a maximum truss or beam span of 10 m:
Build in reinforcing bars in the first horizontal joint above the bottom course. Length of reinforcing rods must be the clear span plus 300 mm on each side. Reinforcing must have 40 mm cover in the outer skin.
If the lintel is in face-brick work, the first course must be brick-on-edge, or as specified.
Support lintels for at least 21 days.
Cills
All external window cills to be brick on edge plastered cills laid to a 10-degree fall. End bricks of cills to be solid units whilst intermediate units to have hollow openings. All brick units used for cills to match finish of units used for walling.
Waterproofing
Refer to Waterproofing specification for waterproofing of brickwork
Proof of quality
Despatch or consignment notes of bricks delivered to site must state the specified requirements and must be kept or shown when requested by the architect/principal agent.
Samples
Supply a sample of six of every other type of clay brick for approval. Supply one sample of every type of concrete block. Keep these units on site for reference.
Storage
Unload bricks and blocks carefully to prevent chipping and breakage. Stack on prepared level areas and protect from staining or marking.

MORTAR

Cement

Class 1 mortar to be used for all brickwork

Type, composition and strength of the cement must be shown on the bag or the delivery slip of bulk cement. Bags must be SANS-mark bearing.

Keep bagged cement in a dry store. Always use the oldest cement first. Do not use bagged cement with lumps that cannot be crumbled by hand.

Sand

Natural or crusher sand for mortar to comply with SANS 1090. Supply grading test results if required by the architect/principal agent.

Obtain sand from one source throughout the duration of the works.

Store sand in a way that will avoid contamination by foreign matter.

Mix proportions

A trial mix should be prepared to achieve an compressive strength of 14.5MPa in an initial laboratory test.

Mixing

Mix ingredients dry on a clean surface or by means of a mechanical mixer. Mix thoroughly until colour is uniform. Add water to give the desired plasticity. Use within 2 hours.

Joints

Concave joints to be used for all horizontal and vertical jointing on facebrick walls and jointing on cills.

Non-MASONRY Walling

5.2 EXTERNAL CLADDING (REFER TO FINISHES SPECIFICATION - WALL FINISHES TYPE W7)

External Side Cladding: (Main building, Sliding Hanger Doors and Wash Bay area) shall be, pierced-fixed box-rib profile. The profile shall be roll-formed from certified 0.53mm TCT pre-painted steel with metallic coating AZ150, grade G550, colour as per Architect specifications with standard backing coat to the underside. The manufacturer must issue a certificate verifying compliance. Profile shall be roll formed with 5 trapezoidal ribs at 190.5 mm centers giving a net cover of 762 mm. The rib height shall be 28.6 mm. Each pan shall incorporate one stiffener rib. The sheets shall be fixed to steel cladding rails at specified centres using class 3 fasteners, in strict accordance with manufacturer’s specifications. Cladding to be installed by an approved installer with a 5-year on-site workmanship and water tightness guarantee to be provided. Side Cladding shall be fixed by means of No. 14 Hex Head screws 25mm long for steel girts and shall incorporate 19mm diameter bonded washers. Side-lap stitching shall be effected at no more than 600mm centres with 25mm long Topspeed Hex Head screws and shall incorporate 19mm diameter bonded washers.

Translucent Side Cladding: (Main building and Wash Bay area) shall be Polycarbonate profiled sheeting to match side cladding with 5 trapezoidal ribs at 190.5 mm centers giving a net cover of 762 mm. The rib height shall be 29mm. Thickness: 1.20 mm ± 5% tolerance. UV protective coating applied to both sides. Colour to be confirmed at a later stage.
Flashings and trims: (Main building and Wash Bay area) Flashing and capping to be manufactured from the same material as the roof sheeting. Flashings specifications shall be to the manufacturer’s standards and fixed to the sheeting with appropriate fixing brackets or, sliding brackets at apex where roof sheets are 30m or longer, to obviate any direct fixing perforations. Prior to flashings being fixed, all troughs at the apex shall be stop-ended to the full depth of the sheet in order to prevent any penetration of wind driven water. The trough shall be lipped at the eaves end to form a drip. Transverse flashing flanges shall be notched to the sheet profile where necessary. All these operations must be performed with the appropriate tools available from the manufacturer. The sheeting shall be closed as necessary with purpose made flashings and shall incorporate serrated closers and poly closers where necessary.

Colour to be confirmed. Refer to elevations for indication of where translucent sheets are interspersed with metal sheets.

FIXING VERTICAL CLADDING
The sheeting shall be laid with side-laps on the leeward side of the prevailing wind direction. An approved side-lap sealant shall be incorporated on roofing with a pitch of less than 15 degrees. All fixing holes shall be drilled and not punched.

Side Cladding shall be fixed by means of No. 14 Hex Head screws 25mm long for steel girts or 65mm long for timber girts and shall incorporate 19mm diameter bonded washers. Side-lap stitching shall be effected at no more than 600mm centres with 25mm long Topspeed Hex Head screws and shall incorporate 19mm diameter bonded washers.

SAFETY
The contractor shall exercise special care when handling long length sheeting, particularly in windy conditions. Should work be interrupted for any reason, all loose sheeting and incomplete sections must be adequately secured against possible movement by wind and gravity.

INSTALLATION
Every precaution shall be taken to prevent damage to roof sheets during all stages of construction. Duck boards should be used when necessary to protect the sheeting from damage. Sheet which has become deformed or damaged in any way, should be replaced. Care shall be taken to ensure that no sheeting or flashing will be cut with abrasive disc on roof surfaces in order to prevent steel particles from penetrating coated surfaces.

HANDLING AND STORAGE
The contractor shall ensure that all materials used on site for roofing/cladding, be transported, handled and stored in accordance with the manufacturer’s recommendations. Material damaged shall be rejected and replaced with undamaged material at the contractor’s expense. Repair of damaged material will not generally be permitted. Rates are to include for preventing damage and protecting sheets through all stages of construction.

INSPECTION PRIOR TO INSTALLATION
Before commencing installation, the contractor shall verify that the following items have been checked and accepted:
The entire structure or the portion thereof to be sheeted has been correctly aligned, levelled and grouted.
Purlins and girts are at the correct spacing and are within the specified tolerances.
The corners of the roof are square and the wall framework is perpendicular or as specified.
No protrusions such as bolt heads, splice plates, cleats, etc. appear on the face of the framework.
All members to which roofing and cladding are to be fixed in aesthetically sensitive areas are true and square.
Paint and any other materials that may be incompatible with the sheeting, have been painted over or, so dealt with that direct contact with the sheeting is avoided.
The contact faces between the purlins or the girts and the cladding are in the same plane. Should the alignment be inadequate, the contractor shall request instructions from the engineer before proceeding with the fixing of the cladding.

PROTRUSION THROUGH SHEETED SURFACES
Protrusions such as pipes, ducts and the like, shall be adequately flashed where they pass through the sheeting surface. Where ribs have to be cut away to permit penetration, additional framing is to be installed as required to support the sheeting. Depending on the position of the penetration through the roof, special attention shall be given to back flashing the sheeting to the ridge or point of water entry. In all cases, all cutting and flashings shall be so arranged that adequate provision is made for the drainage of all troughs and corrugations.

QUALITY ASSURANCE
The manufacturer shall be assessed and certified as complying with ISO 9001:2008 Quality Management System.

CLEANING OF VERTICAL CLADDING, ETC.
All debris, swarf, etc arising from the fixing of the cladding shall be removed from the sheeting as the fixing progresses. In addition, off-cuts of insulation, surplus fasteners, sealants, mandrels from pop rivets, off-cuts of sheeting, surplus flashing, food packaging, cartons, bottles, cans, etc shall not be left on the roof or in the gutters. Care shall be taken to ensure that no such material enters, blocks or partially impedes the flow of water into the outlets, down pipes, etc.

5.3 INSULATION
Consists of 50mm Thick non-combustible, locally manufactured Glasswool, laminated to white metalized foil facing on galvanized wires at 300mm centres. Affix to the roof apex and unroll the blanket with the foil facing down. Overlapping foil edges to be stapled together, all in accordance with the manufacturer's recommendations. Glasswool insulation to be manufactured according to ISO 9001:2008 and ISO 14001.

PLASTERING
In the fresh state plaster must be workable, cohesive and plastic, and have good water retention. In the hardened state, plaster must be: strong enough to hold paint and withstand local impact and abrasion; free of unsightly cracking; well bonded to the substrate; have an acceptable surface texture; and have acceptable surface accuracy (with reference to a plane or curved surface).
MATERIALS

Lime:
Lime shall be hydrated plaster lime complying with the requirements of SANS 523. Builder’s lime and air-entraining agents should not be used with masonry cement.

Cement:
Cements for plaster should comply with the requirements of SANS 50197-1 or SANS 50413-1. CEM I and CEM II A cements are used in plaster with good results. Masonry cements may be used in accordance with the requirements in SANS 2001-EM1

Bags should be clearly marked with the strength grade; cement type and a Letter of Authority (LOA) number issued by the National Regulator for Compulsory Standards, and should provide guidance on mix proportions for plaster. Bulk cement delivery notes should show the same details and confirm compliance with SANS 50197-1 or SANS 50413-1, as relevant.
Gypsum-based plaster should not be mixed with a plaster made with Portland cement.

Sand:
Sand should be free of organic matter such as roots, seeds, twigs and humus.

Maximum particle size:
For conventional smooth plaster, all the sand should pass through a sieve with 2,36-mm openings. Oversize particles (and lumps) should be removed by sieving.

Particle shape:
Ideally, for good workability, the particle shape should be nicely rounded and the particle surface texture should be smooth.

Water:
The water used should be fit for drinking.

MIX PROPORTIONS

External Plaster:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>50kg</td>
</tr>
<tr>
<td>Sand, loose damp volume</td>
<td>150 Litres/2,5 x standard wheelbarrows</td>
</tr>
<tr>
<td>Lime</td>
<td>0 to 25kg</td>
</tr>
</tbody>
</table>

Internal Plaster:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>50kg</td>
</tr>
<tr>
<td>Sand, loose damp volume</td>
<td>200 Litres/3 x standard wheelbarrows</td>
</tr>
<tr>
<td>Lime</td>
<td>0 to 25kg</td>
</tr>
</tbody>
</table>

SURFACE PREPARATION
The surface to be plastered should be accurately positioned overall and zones should not deviate excessively from a plane (or curved) surface. Ideally, the substrate should be rough; absorbent to a
limited extent; strong and clean, i.e. free from any film, such as dust, oil or paint, that could impair bond between plaster and substrate.

Excessively thick plaster, or plaster of uneven thickness should not be relied on to hide inaccurate work.

Before any plastering commences, all chases should be completed and all electrical and plumbing conduits, boxes, etc., should be fixed in position.

Cleaning
Surfaces must be free of loose material, such as dust, and films that can interfere with bonding, such as curing compounds.

Substrate surfaces may be cleaned by:
Water jetting
Blowing with (oil-free) compressed air
Vacuum cleaning
Brushing

Solvents should not be used to remove films formed by curing compounds. (Such films must be removed by mechanical means.)

Absorption
The absorptiveness of the substrate is to be assessed by throwing about a cupful of water against the surface.

The surface will fall into one of three categories:
No water is absorbed.
Some water is absorbed but most runs off.
Most of the water is absorbed.

Category 1 surfaces, which would include hard-burnt clay face bricks, glazed bricks and very dense high-strength concrete, should be prepared by applying a spatter dash coat that includes a polymer emulsion. Such surfaces must not be pre-wetted.

Category 2 surfaces should not require any treatment to control suction.

Category 3 surfaces should be wetted thoroughly for at least one hour and then allowed to become saturated surface dry before the plaster is applied.

Monolithic concrete
Provide a rough surface by either wire brushing the concrete, hacking or abrasive blasting all to Engineers’ recommendation. (If none of these is practicable, apply a spatter dash coat after ensuring that the surface is clean).

Ensure that no form-release oil is left on the surface to be plastered.

Clean down by water jetting or vacuuming.

Remove curing compound, if any, by mechanical means.

Smooth off-shutter high-strength concrete surfaces will require the application of a spatter dash coat.

Burnt clay stock brickwork
The texture of the bricks should be sufficiently rough without further treatment. If not, apply a spatter dash coat, hack the surface or attach the new plaster mechanically with expanded metal lathing.
If the surface is dusty, clean by brushing, water jetting or vacuuming.
Burnt clay stock bricks normally have a very high suction; this can be assessed by wetting the wall (see Absorption above).
If suction is high, pre-wet the wall and allow it to become saturated surface dry before applying the plaster.

**APPLICATION**

**Batching**
Batching sand by loose volume is satisfactory. Batches based on whole bags of cement are preferable. The size of the batch should, however, be small enough for it to be used up within about two hours.

**Mixing**
This may be done by machine or by hand. Machine mixing is preferable and highly recommended.
Hand mixing should be done on a smooth concrete floor or steel sheet.
First spread out the sand about 100 mm thick. Spread the cement uniformly over the sand.
Mix sand and cement until the colour is uniform. Then gradually add water while mixing until the right consistence is reached.

**Plaster thickness**
Recommended thicknesses are:

- First undercoat: 10-15 mm
- Second undercoat: (if any): 5-10 mm
- Finish coat: 5-10 mm

If plaster is applied in a single coat, thickness should be 10-15 mm. A single coat should not be thicker than 15 mm.

Plaster on walls shall be not less than 12 mm in thickness and plaster on concrete ceilings and beams shall not be less than 9 mm in thickness.

**Applying the plaster**
It is highly recommended that the roof is clad before plastering starts. Never work in direct sun.
Plastering should be protected from the sun and drying winds. If it is necessary to plaster walls exposed to the sun, especially in hot or windy conditions, then special precautions may be needed to protect the plaster on the wall from sun and wind to reduce the risk of cracks in the plaster.
The plaster should be used up within two hours of being mixed and never be retempered by mixing in additional water.
Ensure that plaster is not continuous across the line of a damp proof course. Plaster should be cut through to the substrate where different substrate materials meet, e.g. masonry and concrete.

The surfaces of plastered walls internally shall be steel trowelled to a smooth, even and true finish. All external plaster shall be finished to a true and even surface with a wood float. All plaster surfaces shall
be free from blemish. Plaster shall be returned into reveals and soffits of openings and all angles shall be true and straight with salient angles slightly rounded.

The rendering coat of plaster in two-coat work shall be approved by the Representative/Agent before the setting coat is applied and notice shall be given to the Representative/Agent when the plaster is ready for inspection.

For accurate work, apply screed strips before the wall is plastered. Using a rectangular plasterer’s trowel, apply plaster onto the wall or ceiling using heavy pressure to compact the plaster and ensure full contact with the substrate. The plaster should be slightly proud of the intended surface. Once the plaster starts to stiffen, it should be struck off to a plane (or curved) surface using a light striker board. Material removed in this way should be discarded.

If plaster is to be applied in more than one coat, the undercoat(s) should be scored with roughly parallel lines about 20 mm apart and 5 mm deep. For the final coat, use a wood float to remove ridges made by the striker board. At the same time fill in any depressions and float flush with the surrounding plaster.

All cracks, blisters and other defects shall be cut out, made good and the whole left perfect at completion.

FLOORS
Internal Floors:
RC floor slabs and staircases throughout building as per Structural Engineer’s specifications.

External Floors:
External yard area to be paved as per Structural and Civil Engineer’s specifications.

Wash Bay, Diesel Storage and Waste Area:
RC floor slabs throughout as per Structural Engineer’s specifications.

SCREEDS
Applied to RC floor slabs:
Description:
Bonded sand-cement screed with wood floated finish laid to indicated falls, where with minimum thickness of 40mm at lowest point. For vinyl flooring substrates refer to applicable manufacturers’ installation requirements and data sheets.
Tolerances in level and surface regularity:
Maximum permissible departure of the screed level from datum to be 10mm.
Strength
Sand-cement screed strength to be tested with a “BRE screed tester” and to comply with strength category B with maximum permissible indentation depth of 4mm allowed.

Surface preparation
Base concrete must be uniformly hard and strong with MPa strength of at least 20MPa in order to assist with adhesion.
Base concrete should be free of random cracking as screed cannot bridge over cracks resulting in the screed itself cracking in time, which in turn compromises the waterproofing.
Base concrete should be accurate and to the required level as indicated on the Structural Engineer’s drawings.
Base concrete must be clean, free of dust, oil or any other contamination.
Laitance on base concrete should be removed by scarification to expose cleanly the coarse aggregate. All loose debris, dirt and dust should be removed using vacuum equipment.
Surface preparation should be delayed until shortly before the screed is laid, in order to prevent any contamination or accumulation of dirt

Bonding process
A propriety-bonding agent made up of a two-component, solvent-free epoxy compound with an elongation at break percentage of 6, Flexural MPa of 68 and compressive yield strength MPa @ 7 days of 49 to be applied to the prepared surface in strict accordance with the manufacturer’s instructions. The bonding agent must have a volume solid of 100%.

Base concrete is to be tested for absorptiveness a day before the screed is laid by pouring a cup of water onto the surface.

If, during the next few minutes, it is clear that water is being absorbed, the suction of the concrete should be regarded as being high.

In that case the procedure is:

Wet the area on which the new screed or topping is to be laid and keep it wet for four hours or more. Remove all free water on the surface.
Allow the surface to become visibly dry so that the base achieves a saturated surface-dry condition.
Apply the grout to the surface.

If the concrete does not visibly absorb the test water during the first few minutes after application, the suction of the concrete should be regarded as being low and the bonding agent may be applied to the dry concrete. Concretes with 28-day characteristic strengths of 25 MPa and over, if properly compacted and cured, can be regarded as non-absorptive.

The grout may be slushed over the area where it is needed, but must then be worked thoroughly into the surface of the concrete by scrubbing with brushes and then brushed out to leave only a thin coating on the concrete without pools of grout in depressions.
The brushes used for grouting should have bristles about 60 to 100 mm long and flexible enough to reach down into all the irregularities of the surface of the concrete.

Because the screed or topping mix must be laid on the grouted surface while the grout is still visibly wet, i.e. within 10 to 20 minutes of applying the grout, grouting must be done over small areas at a time (±10m²), just ahead of laying of the screed.

The grout must be made up in small quantities at a time, as needed.

NOTE: Under no circumstances should the grout be allowed to dry out before placing the screed, as this will cause debonding.

Materials
Cement:
To comply with SANS 50197-1 type CEM 1 or CEM 2.

Sand:
“Concrete” sand as opposed to a “plaster” sand to be used. Larger particles to be removed by using a sieve with 5mm openings.

Sieving must be done on horizontal sieves, which are shaken or cylindrical sieves, which are rotated. Throwing sand onto a sloping sieve with a shovel is not to be allowed for sieving.

A screed mix of 1 part cement by mass and 3.5 parts sand is to be used to produce a plastic, easy-working, cohesive mortar of plastering consistency with a slump of ±4 mm.

It should have a water-content per cubic metre not exceeding 320 litres but preferably not more than 300 litres.

Sand can be mixed to produce a mix that is easy to finish to a smooth surface. This mix should consist of 4 parts crusher sand, sieved as above, and 1 part “plaster” sand.

Batching
Mix proportions should be:
Sand, measured in the moist, loose state: 130 l
Cement: 50 kg
Water: sufficient to achieve a plastic, workable consistence.

A builder’s wheelbarrow capacity is 65 litres, thus batches consisting of two barrow loads of sand and one bag of cement is convenient for mixing by hand or in a sufficiently large concrete mixer. The volume of compacted screed mix produced by such a batch is approximately 115 litres.

The size of the batch should never exceed the amount that can be used up within 45 minutes of mixing.

Apart from wheelbarrows, containers such as buckets, boxes or drums of known volumes may be used for batching. Batching containers should always be filled flush to the rim. Sufficient containers for a complete batch should be provided to avoid the possibility of errors in counting.
Mixing
Machine mixing is preferable and each batch should be mixed for not less than three minutes if this method is used.
With hand mixing, the sand and cement should be mixed without adding water until the colour is uniform. Then only may the water be added, the quantity used being just sufficient to produce a mix of the desired consistence.
Hand mixing should be carried out with shovels on a smooth concrete floor or a steel plate.

Mixing directly on the ground is not permitted as this results in contamination of the mix with earth and/or organic matter.

Placing and compacting
Control of levels
Narrow strips of screed mix, laid 3 to 4 m apart and compacted to finished level, should be used as guides to establish the level of the screed.
The screed should be placed and compacted immediately after laying the guide strips.
Where the edge of a guide strip forms a day work joint, timber or metal screed battens, carefully leveled and trued, should be fixed at the correct height for the required thickness of screed at ridges of falls.
At day work joints all bedding screed beneath the battens should be cut away to form a vertical joint.

Panel sizes and joints
Screeds should be laid in areas as large as possible in one operation, consistent with achieving acceptable surface regularity and the levels required, to minimise the number of joints.

Where joints are present in the base concrete, they should be continued through the screed so that joints in screed and base line up exactly.
Joints may be formed with screed battens if screeds on each side are cast at different times, or by cutting through the partially stiffened screed mix with the edge of a trowel before the screed sets if both sides are laid at the same time.

Time Limits
The time that elapses between the start of mixing a batch and placing and compacting that batch should not exceed 45 minutes.
During that time the mix should be protected from drying out.
Batches not placed and compacted within this time, or which have stiffened to a degree that their workability cannot be restored fully by turning them over a couple of times with spades, should be discarded.

Consistence of the fresh mix and means of compaction
The fresh mix is to be compacted fully during laying.
The consistence of the fresh mix and the means of compaction must be matched to ensure that this is achieved.
The fresh mix should be nearly as soft and plastic as a cement plaster (slump about 40 mm). Spreading and compacting can then be done with relatively light timber screed boards operated by one or two workmen.
The screed mix should be dumped on the freshly grouted base concrete and spread somewhat thicker than the final required thickness.
It should then be compacted using a screed board with a vertical chopping motion. Extra compaction with hand tampers is recommended along the edges of panels and adjacent to screed strips.
Once the screed has been compacted it should be taken to the correct levels with a screed board riding on the screed strips or battens from the screed high points/ridges to the low points/hopper head outlets.
The surface can then be wood floated to remove any ridges made by the screed board.
Finishing
To be ordinary non-slip wood floated finish. Over-working should be avoided.
Under no circumstances should cement or a dry cement-sand mixture be sprinkled directly onto the surface of a finish in order to absorb bleed water or laitance, since defects such as surface scaling may occur later.
Surface water should not be trowelled back into the finish and, similarly, water should not be applied between trowelling operations, since this may cause surface weakness.
Curing
Concrete has to be effectively cured if maximum surface strength, maximum resistance to surface abrasion and low impermeability of the concrete are to be attained, and the development of drying shrinkage cracks is to be avoided or minimised. It also reduces the effect of differential shrinkage, and therefore curling, by delaying the effect of differential drying until the concrete is better able to resist its effects.
Curing should start as soon after final finishing as practicable, and should be done by one of the following methods:

Covering with thick hessian or similar clean moisture retaining and non-staining material that is kept wet
Covering with polyethylene or similar vapour-proof material in large sheets, sealed at the edges of the finish and at the side laps of the sheeting

To prevent surface damage to trowelled and other finishes, it may be necessary to suspend the coverings described above, clear of the surface until such time as they can be placed directly onto the surface. Care should be taken to prevent wind tunneling under coverings.

Curing should continue for at least 7 days.
Inspection and testing of screeds
Inspection
Before the finishing work is started, the base should be checked for any departure from level, to ensure that the minimum thickness of finish can be applied.

The work should be inspected during progress and after completion, attention being paid to the following points:
- Materials
- Preparation of the base, where the finish is to be bonded
- Batching and mixing
- Proper compaction
- Correct finishing
- Correct curing

Testing of the completed work

After completion of the work, the following tests should be carried out:
- Adhesion of bonded screeds to the base
- Soundness of bonded screeds
- Testing strength
FLOOR FINISHES
VINYL FLOORING: 6-8 WEEKS LEAD TIME
F1: Heavy-duty 2.00mm safety flooring with a raised emboss, for use in barefoot & shod areas.

Supply and install flexible PVC sheet flooring in 2.00mm thickness with hot welded joints with matching welding rod colour to match flooring containing a selection of the following safety aggregates to impart enhanced slip resistance: coloured quartz, natural recycled aggregates and aluminium oxide granules, conforming with the European Norm for safety flooring - EN 13845, having a fire rating of Class Bl-S1 according to EN 13501-1, be fully tested to ASTM E648 by an independent test house and have a Class 1 rating, making it suitable for use in institutional, commercial and public buildings, be fully tested by an independent test house to the RRL Pendulum Test (Slider 55/96 Rubber) and have results of ≥36 in the wet, with a surface roughness of Rz ≥20µm, making it suitable for use in areas where enhanced slip resistance is required in barefoot or shod conditions, a Class B to AS 4586 Part C & DIN 51097 should be achieved and should be certified as R10 to DIN 51130, shall meet the water tightness requirements in EN 13553, meaning suitability for installation in special wet areas, must have been fully tested for abrasion resistance to EN 13845, passing the 50,000 cycles test and also meeting EN 660-2 Abrasion Group P, should not accumulate static charges above 2kV and is classified as ‘antistatic’ when tested to EN 1815, must be suitable for Use Area Classification 23/34/43, as defined in EN ISO 10874 (EN 685).

Colour: to be confirmed

Accessories: Coved skirting – to match flooring. Capping piece.

Installation Method:
1. The screed moisture level must be below 75% Relative Humidity. The liquid Moisture Tester as supplied by the vinyl flooring supplier must not turn pink or purple. If moisture is prevalent, we recommend the use of an effective moisture barrier approved by the vinyl flooring supplier applied in accordance with the manufacturer’s specifications.
2. The screed should be smooth and level. If not, a suitable screed leveller approved by the vinyl flooring supplier should be applied in accordance with the manufacturer’s instructions, using a rake or gauging rake trowel from the vinyl flooring supplier. In all cases of self-level product application, the manufacturer’s instruction should be carefully followed.
3. Should any contaminants be found on the screed, please contact the vinyl flooring supplier.
4. A vinyl flooring supplier recommended adhesive for installing safety flooring should be used in strict accordance with the manufacturer’s instructions.
5. Before cutting in around the edges, the laid floor should be rolled with a three section, 68kg roller to promote effective bonding. Edges can be cut in and the floor rolled again. This should be done soon after laying the sheeting into adhesive in the length and the width direction to get good adhesive transfer.
6. Once the adhesive has set (normally 72 hours), the floor can be washed with a neutral detergent and rinsed.
F9: Hardwearing commercial sheet vinyl floorcovering.

Supply and install flexible PVC tile and plank flooring in 2.0mm thickness having the following laminated construction: circa 0.70mm clear PVC wear layer, a fibreglass reinforced integral print layer and circa 1.30mm of PVC backing, the flooring shall incorporate a specially formulated polyurethane reinforcement, to significantly reduce maintenance costs. In accordance with EN ISO 10582/EN 649, the in-use classification must be at least 23/34/43 as described in EN ISO 10874: i.e. domestic areas with intense use; commercial areas with very heavy traffic; and heavy light industrial areas, in respect of flame spread, the flooring shall have been fully tested to EN13501-1 and certified as having Class Blfl-S1, the product must have been fully tested for abrasion resistance and meet the requirements of abrasion Group T, as defined in EN 649 and Binder Content Type 1 as defined in EN ISO 10582, this product does not accumulate static charges above 2kV and is classified as 'antistatic' when tested to EN1815. For specialist applications where there is a requirement to dissipate the electrostatic charge see the manufacturer's ESD product ranges, with regards the European requirements EN 13893 for slip resistance, the flooring shall be classified DS, making it suitable for use in areas which are predominantly dry. When tested to DIN 51130 the product shall be classified as R10. For safety flooring with sustainable wet slip resistance, refer to the manufacturer’s ranges, in respect of light fastness, the flooring shall have been fully tested to ISO 105-BO2 Method 3 having a pass to ≥6, the flooring must be available in 2.01 metre width, including a 0.01 metre selvage for onsite trimming, to minimise the number of joints.

Colour: to be confirmed

Accessories: Coved skirting – to match flooring. Capping piece.

Installation Method: Hot welded joints – weld rod colour to match flooring

Subfloor requirements: All subfloors should be inspected prior to installation. All subfloors must be smooth, clean dry, structurally sound, and free of dust, dirt, oil, wax, paint or any other contaminant that would inhibit a good bond.

Installation Method: Maintain room temperature, adhesive and flooring between 18-29º C for a minimum of 48 hours prior to installation. The area should have a permanent heat and air conditioning system in operation prior to, during and after installation of the flooring. For best results, remove tile from the carton and separate into small piles. This will assure that the tiles are acclimated to the jobsite conditions. Tile should always be inspected for any dye lot variations. The Manufacturer will not warrant that different dye lots will match each other. Best results are obtained by installing the tile from the centre of the room. Measure and mark at the centre of each end wall. Connect these centre points with a chalk line. Locate the centre and establish a line at a right angle to the existing line.
Name: Non-slip Porcelain tile  
Finish: To be confirmed  
Size: 600 x 600mm  

Other: Grouting gap to be 3mm, normal grout is required in non-permanent wet conditions  
Grouting to be used in changeroom floors generally and wc floors; Light grey Rapid setting grout (20kg) A polymer modified, flexible, high strength, water-resistant grout, requiring no additional additives, drying time in 3hrs.  
Sealant for grouting in wet areas to be applied; SABS approved adhesive to be used.  

F5 TILE FLOORING  
Name: Porcelain tile  
Finish: To be confirmed  
Size: 600 x 600mm  

Other: Grouting gap to be 3mm, normal grout is required in non-permanent wet conditions  
Grouting to be used in wet areas; Light grey Rapid setting grout (20kg) A polymer modified, flexible, high strength, water-resistant grout, requiring no additional additives, drying time in 3hrs.  
Sealant for grouting in wet areas to be applied; SABS approved adhesive to be used.  

Subfloor requirements: All subfloors should be inspected prior to installation. All subfloors must be smooth, clean dry, structurally sound, and free of dust, dirt, oil, wax, paint or any other contaminant that would inhibit a good bond.  

Installation Method: Maintain room temperature, adhesive and flooring between 18-29º C for a minimum of 48 hours prior to installation. The area should have a permanent heat and air conditioning system in operation prior to, during and after installation of the flooring. For best results, remove tile from the carton and separate into small piles. This will assure that the tiles are acclimated to the jobsite conditions. Tile should always be inspected for any dye lot variations. The Manufacturer will not warrant that different dye lots will match each other. Best results are obtained by installing the tile from the centre of the room. Measure and mark at the centre of each end wall. Connect these centre points with a chalk line. Locate the centre and establish a line at a right angle to the existing line.  

F6 POLYURETHANE SCREED  

Apply a heavy duty, high strength polyurethane screed @ 6mm thick providing medium to heavy profile slip resistance. The minimum requirements for the polyurethane screed will be the following with the necessary certificates and approvals being submitted at tender stage.  
Compressive strength of 50 MPA after 28days (BS EN 13892-2).  
Flexural strength 10n/mm² after 28days (BS EN 13892-2).  
Suitable for concrete protection chemical resistance (Principal 6 method 6.1 of EN 1504-9).
Part C3: Scope of work

Product should comply with (Principal 5, Method 5.1 of EN 1504-9) to provide physical resistance for concrete protection.

Abrasion resistance:
Class “Special” Severe abrasion resistance (BS 8204 Part 2)
AR 0.5 (EN 13892-4)
(Less than 0.05 mm wear depth)
2730 mg (ASTM D 4060-01)
Taber Abrader H-22 wheel / 1000 gr / 1000 cycles

Fire rating - class B (F7) S1 (BS EN13501-1)

Thermal expansion Coefficient:
\[ \alpha \approx 2.7 \times 10^{-5} \text{ per } ^°\text{C} \] (ASTM E 381, ASTM D-696, ISO 11359)
(Temperature range: -20°C to +60°C)

Slip resistance - (BS 8204 part 2).
SRV dry 70 and SRV wet 65.

Product must be produced in a factory with the following certifications.
ISO 9001
ISO 14001
OHSAS 18001

F8 WALK OFF MAT
Description:
9mm Thick entrance textile flooring mat with 6mm pile height and flame retardent latex backing which conforms to EN 13501 BflS1. Product to have wear use classification of class 33. Colour to be chosen later.

Size: 1500mm wide (full corridor width) x 1200mm deep.

Accessories: Stainless steel capping strip

Other: The direction in which the flooring mat is produced is not the traffic direction. Mat should be installed with the ribs at right angles to the direction of traffic. A high quality installation is of utmost importance for a trouble free and durable lifetime expectancy of the flooring material.

Substrate preparation: The subfloor may be levelled e.g. with a cement based levelling compound. The subfloor should be smooth, rigid, clean and permanently dry.
Layout & Cutting: Lay out the acclimatized material (at least 15 °C) on a smooth horizontal surface and allow it to relax at recommended temperature and time before pre-cutting it. Cut off the edges + 1cm extra, before a butt jointed installation.

Installation Method: Loose lay matting.
Maintenance: The mat should be taken outside and then be sprayed down with a water hose and if necessary brush it clean.

SKIRTING
SK1 COVED GRANO SKIRTING

Coved granolithic skirting 100mm high.

SK2 TILED SKIRTING
Name: Non-slip Porcelain tile to match floor tiles
Finish: To be confirmed
Size: 150 x 600mm

SK3 COVED VINYL SKIRTING
Name: Vinyl skirting
Cove Former: (20mm radius)
Capping strip: Capping strip – col to match flooring
Joints: Hot welded rod, colour to match flooring

Drawing reference: 357/TD/510 to 523, 357/TD/503 Finishes Schedule

Accessories: Easy-to-fit flooring accessories designed for use with most vinyl floorcoverings Sit-on and set-in coved skirting’s for attractive and hygienic finishing Welding rod to match vinyl flooring sheet products to produce hygienic, continuous floors

Other: Where ease of maintenance and hygiene are important, sheet flooring may be taken up the wall, having created a radius using a Cove Former. Capping Strip gives a neat finish to the installation and ensures a continuous, sealed surface. The benefits of a sealed, easily maintained surface are invaluable in hospitals and other similar locations where hygiene is of paramount importance.

Installation: Flooring gets taken up the wall using a Cove former and a capping strip

SK4 POWER SKIRTING
As per Electrical Engineer's specification

SK5 SKIRTING ACCESSORIES
Name: 12mm Stainless steel square edge trims to all exposed tiles
Finish: Stainless Steel

Instructions: To be placed at 150mm AFFL.
WATERPROOFING SPECIFICATIONS AND RECOMMENDATIONS

Please note the architects are to be informed prior to the completion and covering up of waterproofing in order for inspection and approval of works to take place. All products specified by the architects to be applied and installed in strict accordance with product data sheets provided in the waterproofing specification. The architects will not be held responsible for any workmanship and non-compliance on the part of the applicator. Applicator is to provide all necessary guarantees for application of products and workmanship.

Selected waterproofing product manufacturers’ must be able to assist the contractor with correct application of the waterproofing products and checking the relevant substrates prior to the application of the products. The contractor is to contact the manufacturer prior to commencement of any waterproofing so that the substrates can be checked. The contractor must make use of an approved applicator and will need to provide a 10-year back-to-back guarantee (i.e. Product and Workmanship/application guarantee) upon completion of works.

The following specification is to be read in conjunction with the following reference drawings supplied as well as the relevant product data sheets.

Waterproofing specification

The recommended specification consists of the following:

Cementitious coating to inner skin of brickwork – Ready to use flexible slurry based on a special synthetic resin dispersion and blend on selected cements mixed with carefully graded aggregates. Applied at 2kg/m²/1mm thickness per coat. 2 coats required. Positive pressure 20 Atmospheres.

Ensure that there is a 100mm length of 100% polypropylene continuous filament saturation membrane applied on all corners on both the horizontal and vertical surfaces. (Applicable to all window and door head, cill and reveal details). Saturation membrane should have a weight of 95 grams per m² and a tensile strength of 6.5 kN/m.

Self-adhesive waterproofing membrane - Self adhesive Bitumen waterproofing membrane incorporating a fabric embedded on the surface to receive plaster or tiles.

Expansion joints between brickwork and RC beams and columns – Non-absorbent, closed cell, polyethylene joint filler with a density of between 90 – 110 kg per cubic metre and a 95% recovery from 50% compression for 22 hours at 20° after 4 days with Neutral cure Silicone sealant which conforms to ISO 11600-F-25 LM with a movement capability of +/- 50%. The sealant must have an elongation at break of 380% and a Shore A hardness of 29. Product must carry a 10-year crack, craze and crumble warrantee.

Flexible joint sealant between aluminium sub-frame and window frame - Neutral cure Silicone sealant which conforms to ISO 11600-F-25 LM with a movement capability of +/- 50%. The sealant must have an elongation at break of 380% and a Shore A hardness of 29. Product must carry a 10-year crack, craze and crumble warrantee. Minimum joint size 6mm x 6mm -if this applies.
Part C3: Scope of work

External silicone sealant at aluminium window frames - Neutral cure Silicone sealant which conforms to ISO 11600-F-25 LM with a movement capability of +/- 50%. The sealant must have an elongation at break of 380% and a Shore A hardness of 29. Product must carry a 10-year crack, craze and crumble warrantee. Minimum joint size 6mm x 6mm - if this applies.

Expansion joints between building brickwork and paving – Non-absorbent, closed cell, polyethylene joint filler with a density of between 90 – 110 kg per cubic metre and a 95% recovery from 50% compression for 22 hours at 20° after 4 days with Self leveling silicone joint sealant for asphalt or concrete pavements. Sealant must have a joint movement capability of +/-50% and carry a 10-year crack craze and crumble warrantee. DPM taping at termination point - Bitumen aluminium self-adhesive waterproofing tape with a total thickness of 1200 µm consisting of a 50 µm aluminium sheet and 1150 µm thickness of adhesion. The adhesion to metal, plastics, primed concrete and itself should be 2.0 N/mm minimum.

Shower waterproofing details specification:
The recommended system consists of the following:
Cementitious coating to inner face of brickwork as waterproofing membrane, up to 2 metres high – Ready to use flexible slurry based on a special synthetic resin dispersion and blend on selected cements mixed with carefully graded aggregates. Applied at 2kg/m²/1mm thickness per coat. 2 coats required. Positive pressure 20 Atmospheres
Cementitious coating mixed in to screed laid to fall to form waterproof screed.
Reinforced membrane, 100% polypropylene continuous filament saturation membrane with a weight of 95 grams per m² and a tensile strength of 6.5 kN/m, applied to all corners and vertical and horizontal joints
Reinforced membrane fitted around the drain flange and vertical pipe - 100% polypropylene continuous filament saturation membrane with a weight of 95 grams per m² and a tensile strength of 6.5 kN/m soaked in a ready-to-use flexible slurry based on a special synthetic resin dispersion and blend on selected cements mixed with carefully graded aggregates. Applied at 2kg/m²/1mm thickness per coat. 2 coats required. Positive pressure 20 Atmospheres
Silicone sealant around floor gratings and wall fittings - Neutral cure Silicone sealant which conforms to ISO 11600-F-25 LM with a movement capability of +/- 50%. The sealant must have an elongation at break of 380% and a Shore A hardness of 29. Product must carry a 10 year crack, craze and crumble warrantee.

Installation
Contractor is to refer to the applicable data sheers of the respective products specified:
All products recommended conform with ISO 9000 standards and applicators to conform with health and safety requirements.
Applicators are to be familiar with installation of the products specified and work to manufacturers instructions.
All sealants to have a 10-year crack, craze and crumble guarantee.
Measures should be taken that the surfaces are dry and free of voids and protrusions.
The junction between the horizontal and vertical surfaces to be coved.
Following the application, an inspection should be taken to prevent damage by following trades.
Damaged areas to be clean and patched as per the manufacturer’s instructions.
All dpm membranes, where lapped/where penetrated with services pipes/where damaged, to be taped and sealed as per the manufacturer’s specification.
Self-adhesive waterproofing membrane to be dressed up and taken under the threshold and turned up onto an aluminium angle under all thresholds, doors and windows
All surface bed concrete to be placed on a 350 micron plastic and taped with self-adhesive waterproofing membrane.

ROOF COVERINGS

Roof assembly construction to consist of the following:

9.1 Profiled steel sheeting laid to 5-degree fall
9.2 50mm Insulation layer on;
9.3 Steel roof structure

13.1 ROOF SHEETING

The roof sheeting shall be double-interlocking concealed-fix profile roll-formed in continuous lengths and cut to length by a pneumatic cut-off process from certified 0.53mm TCT pre-painted steel with metallic coating AZ150, grade G550 and colour as per Architect specifications with standard backing coat to the underside. The manufacturer shall issue a certificate verifying compliance. The profile must include structural transverse stiffener ribs located in the pans / troughs for increased wind loading capabilities. Four narrow flutes / Ribs with centers not exceeding 233mm and a cover width not exceeding 700mm. These will include a male and female rib with capillary action breaks. The male rib shall incorporate spurs spaced no more than 200mm apart to ensure minimum clipping areas on the side lap, and stand proud of the rib for purposes of double interlocking action with adjacent sheets. When interlocked, the minimum sheet depth shall be 41mm. Roofing shall fixed to steel purlins using galvanised clips and class 3 fasteners, in strict accordance with manufacturer’s specifications by an Approved Contractor. A written and approved five-year guarantee of water-tightness shall be issued after approval of roofs by the manufacturer.

Flashings and trims: The sheeting shall be closed as necessary with purpose made flashings and shall incorporate serrated closers and poly closers where necessary. Flashing shall be fixed to purlins by means of No. 14 Topspeed Hex head screws 25mm long with 19mm diameter bonded washers for side cladding.

Refer to attached data sheets for manufacturer's installation requirements.

Colour to be confirmed. Refer to elevations for indication of where translucent sheets are interspersed with metal sheets.

FIXING

The sheets shall be fixed to every purlin by means of patented galvanised clips having spurs which will securely hold the sheets in position and lock-in the sidelap and both centre ribs. The galvanised clips shall be manufactured from Galvanized steel and shall be fixed with the appropriate self-drilling/tapping screws to steel purlins (selection from installation manual).

FLASHINGS

Flashling and capping to be manufactured from the same material as the roof sheeting. Flashings specifications shall be to the manufacturers standards and fixed to the sheeting with appropriate fixing
brackets or, sliding brackets at apex where roof sheets are 30m or longer, to obviate any direct fixing perforations. Prior to flashings being fixed, all troughs at the apex shall be stop-ended to the full depth of the sheet in order to prevent any penetration of wind driven water. The trough shall be lipped at the eaves end to form a drip. Transverse flashing flanges shall be notched to the sheet profile where necessary. All these operations must be performed with the appropriate tools available from the manufacturer.

SAFETY
The contractor shall exercise special care when handling long length sheeting, particularly in windy conditions. Should work be interrupted for any reason, all loose sheeting and incomplete sections must be adequately secured against possible movement by wind and gravity.

INSTALLATION
Every precaution shall be taken to prevent damage to roof sheets during all stages of construction. Duck boards should be used when necessary to protect the sheeting from damage. Sheet metal that has become deformed or damaged in any way, should be replaced. Care shall be taken to ensure that no sheeting or flashing will be cut with abrasive disc on roof surfaces in order to prevent steel particles from penetrating coated surfaces.

HANDLING AND STORAGE
The contractor shall ensure that all materials used on site for roofing/cladding, be transported, handled and stored in accordance with the manufacturer’s recommendations. Material damaged shall be rejected and replaced with undamaged material at the contractor’s expense. Repair of damaged material will not generally be permitted. Rates are to include for preventing damage and protecting sheets through all stages of construction.

INSPECTION PRIOR TO INSTALLATION
Before commencing installation, the contractor shall verify that the following items have been checked and accepted:

- The entire structure or the portion thereof to be sheeted has been correctly aligned, levelled and grouted.
- Purlins and girts are at the correct spacing and are within the specified tolerances.
- The corners of the roof are square and the wall framework is perpendicular or as specified.
- No protrusions such as bolt heads, splice plates, cleats, etc. appear on the face of the framework.
- All members to which roofing and cladding are to be fixed in aesthetically sensitive areas are true and square.
- Paint and any other materials that may be incompatible with the sheeting, have been painted over or, so dealt with that direct contact with the sheeting is avoided.
- The contact faces between the purlins or the girts and the cladding are in the same plane. Should the alignment be inadequate, the contractor shall request instructions from the engineer before proceeding with the fixing of the cladding.

PROTRUSION THROUGH SHEETED SURFACES
Protrusions such as pipes, ducts and the like, shall be adequately flashed where they pass through the sheeting surface. Where ribs have to be cut away to permit penetration, additional framing is to be installed as required to support the sheeting. Depending on the position of the penetration through the roof, special attention shall be given to back flashing the sheeting to the ridge or point of water entry.
In all cases, all cutting and flashings shall be so arranged that adequate provision is made for the drainage of all troughs and corrugations.

GUARANTEE
The manufacturer shall comply with ISO 9001:2008 Quality Management System. Sheeting shall be laid in strict accordance with the manufacturer’s specifications by an contractor. A written and approved five year guarantee of water-tightness shall be issued after approval of roofs by the manufacturer.

CLEANING OF ROOF, ETC.
All debris, swarf, etc arising from the fixing of the cladding shall be removed from the sheeting as the fixing progresses. In addition, off-cuts of insulation, surplus fasteners, sealants, mandrels from pop rivets, off-cuts of sheeting, surplus flashing, food packaging, cartons, bottles, cans, etc shall not be left on the roof or in the gutters. Care shall be taken to ensure that no such material enters, blocks or partially impedes the flow of water into the outlets, down pipes, etc.

13.2 INSULATION
Consists of 50mm Thick non-combustible, locally manufactured Glasswool, laminated to white metalized foil facing on galvanized wires at 300mm centres. Affix to the roof apex and unroll the blanket with the foil facing down. Overlapping foil edges to be stapled together, all in accordance with the manufacturer's recommendations. Glasswool insulation to be manufactured according to ISO 9001:2008 and ISO 14001.

13.3 STEEL ROOF STRUCTURE
Refer to Structural Engineer’s specification for steel structure and cladding rail details.

CARPENTRY AND JOINERY
Timber Doors
Timber doors must comply with SANS 545 and must be of type, handing, materials of construction, face and edge finish, size and position of coat rails and closer blocks, dimensions, performance class, interior/exterior grade, rebated pairs, weather bar and ironmongery as specified.

Storage
Seal doors, or knot and prime, on all four edges immediately after delivery to site (if not prefinished). Store doors flat (not on edge) on a level surface in a dry and well-ventilated building.

Hanging
Delays hanging of doors until all wet trades are done.

Check distortion or out-of-plumbness of frames, and report to the architect/principal agent, before hanging door.

Hang doors to leave a clear space of 2 mm (+0 mm -1 mm) above and along the sides, and 6 mm (+0 mm -3 mm) under the door. Take off equal amounts from each side, top and bottom of flush doors when fitting. To reduce the height of panel or framed doors, take off from the bottom only.

Certain doors, as indicated on the door schedules, are to be undercut for ventilation requirements.
Fit two hinges to every door leaf. Fit three hinges to doors weighing more than 20 kg, and doors that are exposed to large differences in humidity or temperature. Hang external doors on brass hinges of which the pins are not removable.

Refer to door schedules for fire rated door hinge requirements.

Paint or seal the top and bottom edges of doors after trimming to size and before hanging.

Preparation
Shop drawings must be provided for all joinery work. Discuss all aspects with the architect/principal agent before any work is put in hand.

Provide a sample of every typical finished surface showing its final appearance and smoothness, including edge strips, stopping and dowelling, as specified.

These samples must be kept on site for reference.

Provide the architect/principal agent with the opportunity to inspect the joinery before any priming or decoration is done.

Do not start any joinery before sizes have been checked on site.
Timber door frames, sidelights, fanlights
Frames, sub frames and glazing beads for door and window frames must be of size and timber species as specified.
Join frames with mortice and tenon joints.
Frames must be rebated out of solid wood. Do not lay on door stops.
Top rails of frames must be provided with bevelled haunches for building in.
Glazing beads must be tacked lightly in place.
Galvanised steel lugs for building in must be screwed to the outside of every stile.
Bottom ends of doorframe stiles must be provided with one 10 mm diameter steel dowel for building into thresholds.
Head and bottom rails of windows and sidelights must be provided with a drip.
Paint backs of sub frames one coat wood primer before building in.

IRONMONGERY
Refer to Ironmongery Schedule, Schedule summary, specification and Set list for ironmongery details and specification.

Ironmongery notes:
Access control by security specialist
Male/female screws for back to back fixing of all handles
Hinges to Fire doors by fire door manufacturer.
A minimum of 50mm clearance is required behind the door for the fitting of the door closer.
All ironmongery to Fire doors to comply with SANS 10400-T: 2011 and the relevant SANS Fire Code.

Door Signage

1.2mm Thick Stainless Steel full infill engraved door signage plates, 152mm (w) x 152mm (h) overall dimensions. All to be locally manufactured and SABS Approved.

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<thead>
<tr>
<th>Description</th>
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<tr>
<td>Tea/Kitchen Sign</td>
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<td>Male indicator sign</td>
</tr>
<tr>
<td>Female Indicator Sign</td>
</tr>
<tr>
<td>Male and Female Sign</td>
</tr>
<tr>
<td>Cleaner Mop &amp; Bucket Sign</td>
</tr>
</tbody>
</table>

Drawing reference:
357/TD/501

METALWORK
Shop drawings to be provided for all windows, louvres, screens and gates.
17.1 ALUMINIUM FRAME WINDOWS AND DOORS
Glazed aluminium windows
Glazed aluminium alloy windows for external use must comply with SANS 1651 and be of type and dimension, handing, finish, type and quality of glass, colour of gaskets and weather-strips, material and finish of hardware, insect screens, whether weather-strips are to be renewable, additional security devices and performance class as specified.

Finish
Powder coated as per schedules.
Powder coating must be to SANS 1578 part 1 and 2, of type, thickness and colour as specified.

Provide a certificate that the finish conforms to the specified standards by an approved anodizer or powder applicator, who is a member of the Aluminium Federation of South Africa (AFSA).

Provide a written guarantee for 10 years from the anodizer/powder applicator against peeling and discolouration.

Glass
Glass must be of type, thickness and colour as specified with relevant certification to be supplied, all as per noted on schedules.

Design
Design wind pressure and class designation must be as specified. The manufacturer is responsible for taking height of product head above ground into account when selecting products of appropriate performance. Atmospheric temperature range is between -10(C and 35(C). The plastic, shrinkage and creep deflection of floor slabs must be as specified.

Manufacture
Aluminium framed windows must be manufactured according to the minimum requirements of the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA).

Each window must be marked with the mark and number of the test certificate issued by AAAMSA, or a copy of the latest performance test certificate for similar products must be provided.

The supplier is responsible for confirmation of opening sizes.

Frame parts must be joined by mechanical means or by welding. Joints may have flush, stepped or lapped surfaces. Mitred joints may only be flush. Contractor to confirm joint type prior to manufacturing and indicate this on the required shop drawings. All joints must be sealed. Contact between incompatible materials is not allowed.

Accessories must be removable without having to remove the frames from the structure. Sliding members must be fitted so that no metal-to-metal sliding contact occurs.

Sealants must be compatible with aluminium, and fitted so that the performance of the sliding or swinging parts is not impaired by their deterioration.

Glazing beads, gaskets and glazing compounds must be compatible with the aluminium, its finish and with the glass. No putty is permitted.
Hardware and fittings must be resistant to atmospheric corrosion and be accessible for adjustment, repair and replacement after the window or door has been installed.

Fastenings must be compatible with aluminium and its finishes.

Installation
Build in approved sub frames as specified. Waterproofing to be dressed onto sub frames as per Architect’s detail.

Fit windows at the last possible stage in the building process to prevent damage and staining of the aluminium frames.

Protect frames against impact or scratching by wrapping with paper or plastic or covering with a light tack tape, and leave these wrappings in place until all rough trades are finished.

Use fixings of aluminium or 316-grade stainless steel.

Avoid direct contact between aluminium and other metals or wet concrete by applying a separating coat of bituminous paint.

Install the window or door secure, sealed and undamaged.

17.2 Ventilation louvres
Fixed panel weather-resistant aluminium ventilation louvres as per Mechanical Engineer’s specification.

High-level louvres to be fixed within vertical sheet cladding as per manufacturer’s recommended detail.

17.3 Wall louvres:
Quantities, specification and position of louvres to be referenced from Mechanical Engineer’s drawings. Louvres to be fixed to hardwood sub frame as per Mechanical Engineer’s detail drawings.

17.4 Services Duct Ventilation Louvres:

200mm x 200mm Aluminium louvres fixed to hardwood sub frame to provide ventilation to services ducts.

17.5 Gates
to be provided for architect’s approval prior to commencement of manufacturing of all gates.

Wash bay Entrance gates:
Custom-made double swing type 3 high-security gates with a flat infill panel consisting of 12,7mm x 76,2 wide apertures with 3,96mm thick ZinAlu wire (PVC Coated wire 4.4mm) by an approved manufacturer as per gate schedule. Manufacturer to be certified as compliant with the ISO 9001:2008 Quality Management System. Contractor is to provide a 10-year guarantee certificate from the manufacturer.

Contractor to note that opening widths of entranceways differ for each building. Refer to fencing and gate layout for approximate dimensions. Dimensions to be taken on site prior to manufacturing thereof.

Shop drawings to be provided for architect’s approval prior to commencement of manufacturing of all gates.

Workshop Entrance gates:
Custom-made double-leaf sliding type 2 medium-security gates, to accommodate wash bay and main workshop area entrance openings, with a flat infill panel consisting of 12,7mm x 76,2 wide apertures with 3,96mm thick ZinAlu wire (PVC Coated wire 4.4mm) by an approved manufacturer as per gate schedule. Manufacturer to be certified as compliant with the ISO 9001:2008 Quality Management System. Contractor is to provide a 10-year guarantee certificate from the manufacturer.

Contractor to note that opening widths of entranceways differ for each building. Refer to fencing and gate layout for approximate dimensions. Dimensions to be taken on site prior to manufacturing thereof.

Shop drawings to be provided for architect’s approval prior to commencement of manufacturing of all gates.

17.7 Rainwater goods
Main Building
Approved purpose-made aluminium Gutter - 20 x 250 x 300 x 230 - Bent up front 800 mm girth x 0.9 coil in 6 meter lengths, butt to butt strap joints, silicone sealed with a neutral cure Silicone sealant and riveted. Silicone seal must conform to ISO 11600-F-25 LM with a movement capability of ±50%. The sealant must have an elongation at break of 380% and a Shore A hardness of 29. Product must carry a 10-year crack, craze and crumble warrantee - Colour White or Charcoal HDPE. Gutter to be coated internally and externally with ‘ColourTech G4’ in colour ‘Charcoal’ including cut and mitred angles covered with a mitre strip externally, stop ends riveted and all sealed on the inside with neutral cure Silicone sealant which conforms to ISO 11600-F-25 LM with a movement capability of ±50%. The sealant must have an elongation at break of 380% and a Shore A hardness of 29. Product must carry a 10-year crack, craze and crumble warrantee. Gutter brackets to be installed before the roof sheet is installed
Allowance to be made for the following:
Gutter - Brackets Custom 38mm x 4 mm - spaced at 400 centres
Gutter - Rooffix Brackets Custom 38mm x 4 mm including tie straps
Gutter - Overflows 75mm
Outlets - 200 mm
Downpipes - PVC 200 mm (6m Lengths)
Downpipes - PVC 200 mm Holderbats
Downpipes - PVC 200 mm Spacers
Downpipes - PVC 200 mm Bends
WASHBAY
Gutter - 140 x 150 BOX
Gutter - Roof fix bracket 25 x 3mm
Outlets
Downpipes - PVC 110 mm (6 meter lengths)
17.9 Sun shading devices
Aerofoil 200 profile or equally approved, fixed by means of central pin cut out end plates. Aerofoil to be epoxy coated to Architect’s colour choice include fixing plate to 80mm x 30mm horizontal projecting supports. Louvre and support structure to be powder coated epoxy coated to later specifications or equally approved. Louvre blades to span a maximum of 2000mm between supports. Contractor to make allowance for sufficient number of support brackets.
Shop drawings to be provided for architect’s approval prior to commencement of manufacturing thereof.
17.10 Fire Shutters
Shop drawings to be provided to architects for approval prior to manufacturing has commenced.
Fire shutter type: FSA
SABS 0177-2:2005 tested and approved certified class C, 2 Hour rated fire shutter door with a fusible link, to enclose 1800mm x 1200mm high structural opening. Certification in conjunction with the Quality Control Surveillance and Inspection Report number 14022 and the corresponding report from Firelab, number FTC07-154.
Finish: Mill finished, fully galvanised.
Fire shutter type: FSB
SABS 0177-2:2005 tested and approved certified class C, 2 Hour rated fire shutter door with an HL Fire motor, to enclose 1800mm x 1200mm high structural opening. Certification in conjunction with the Quality Control Surveillance and Inspection Report number 14022 and the corresponding report from Firelab, number FTC07-154.
Shutter to make allowance for serving counter to be fitted at base.
Finish: Mill finished, fully galvanised.
Fire shutter type: FSC
SABS 0177-2:2005 tested and approved certified class C, 2 Hour rated fire shutter door with a fusible link, to enclose 1800mm x 1200mm high structural opening. Certification in conjunction with the Quality Control Surveillance and Inspection Report number 14022 and the corresponding report from Firelab, number FTC07-154.
Finish: Mill finished, fully galvanised.

17.11 Sliding Hanger Doors
6000 x 6500mm High, multi-directional sliding and stacking Steel Doors, formed of 152 x 76 x 17.9 frame, welded channels, with a 152 x 76 x 17.9 back to back channels running through the centre, including two horizontal 100 x 75 x 20 x 2.5 CFLC sheeting rails and two bottom 40 x 40 x 3 angle iron bracings, clad with 3 x 2000 x 1045mm high with 2000 x 1045mm weather-resistant Aluminium Ventilation louvres, made up Blades of extruded aluminium sections Mullion in formed galvanised sheet steel; powder coated black (RAL 9005) Mullion is drilled at side and rear for connecting louvre sections together or connecting to site support structure Wire mesh screen from galvanised steel, mesh size 20 x 20 mm, or equally approved fixed to steel frame (Ref. to drawing ACSA/TD602/P1). With one row 1275mm High Translucent sheeting, the balance of door clad with roll-formed pierced, box-rib profile steel sheeting, roll-formed from certified 0.53mm TCT pre-painted steel with metallic coating AZ150, grade G550, colour as per architect specifications with standard backing coat to the undersides sheeting to match vertical cladding material, fixed to steel cladding rails at specified centres using class 3 fasteners, in strict accordance with manufacturer’s specifications. Cladding to be installed by an approved installer with a 5-year on-site workmanship and water tightness guarantee to be provided. Side Cladding shall be fixed by means of No. 14 Hex Head screws 25mm long for steel girts and shall incorporate 19mm diameter bonded washers. Side-lap stitching shall be effected at no more than 600mm centres with 25mm long Topspeed Hex Head screws and shall incorporate 19mm diameter bonded washers in accordance with the manufacturer’s instructions, complete with, rails, top guide and bottom guide complete, all structural steel sizes to Eng.’s detail. Sliding door gear to be supplied by a company with a proven track record in manufacturing heavy-duty rollaway systems. Sliding doors to incorporate heavy-duty rollers and guides capable of carrying 2000kg (dynamic and static load ratings to be supplied). Supplier to provide wind pressure parameters, relevant test data and/or technical certificates as well as relevant warranty documents (minimum 5 years required).

17.12 Aluminium cladding above hanger doors
Profiled aluminium cladding piece as flashing above sliding hanger doors.

UNDER GROUND SOIL DRAINAGE
Refer to Civil Engineering specification.

ABOVE GROUND SOIL AND WASTE WATER DRAINAGE
As per Wet Services Engineering specification.

HEAT PUMPS
Heat pump as per Mechanical Eng.’s specification. All necessary sleeves to be provided through first floor walls and ceilings for inlet and outlets pipes as per Mechanical Engineer’s drawings. Heat pump unit to be mechanically fixed to internal 230mm wall on workshop area side. Heat pump system to be supplied with all necessary accessories and kit and fitted to manufacturer’s specifications. An anti-corrosion coating is to be applied to unit, as per heat pump specification.

GLAZING
Glass must be of type and thickness as specified on schedules.
Part C3: Scope of work

Maximum pane sizes for single-pane float glass should not exceed $0.75 \text{ m}^2$ for $3 \text{ mm}$ thickness, $1.5 \text{ m}^2$ for $4 \text{ mm}$ thickness, $2.1 \text{ m}^2$ for $5 \text{ mm}$ thickness or $3.2 \text{ m}^2$ for $6 \text{ mm}$ thickness.

Safety and security glass must comply with SANS 1263, part 1, 2 or 3. Each sheet of glass must be permanently engraved with the trade name of the laminator and the symbol ‘1’ for safety glass, ‘2’ for burglar-resistant glass, and ‘3’ for bullet-resistant glass. These markings must be visible after glazing, and be situated in the left or right bottom corner of the installed sheet, unless otherwise specified.

Plastic glazing materials must be acrylic or polycarbonate to specified thickness.

Sealants

- Sealants must be one or more of the following, as specified:
  - polysulphide to comply with SANS 110 (two part)
  - Silicone to comply with SANS 1305
  - Polyurethane to comply with SANS 1077.
  - Gaskets, tape, setting blocks
  - Elastomeric structural glazing and panel gaskets must comply with SABS 635, of dimensions and thicknesses as specified.

Adhesive glazing tape must be treated cotton-based tape with self-adhesive coating on one or both sides, or adhesive velvet ribbon with adhesive coating on one side.

Setting and locating blocks must be of an approved resilient, non-absorbent, inert material.

Preparation

- Allow an edge clearance of at least $3 \text{ mm}$ all around panes up to $6 \text{ mm}$ thick. Increase the edge clearance for thicker panes and with a minor dimension exceeding $1000 \text{ mm}$.

- Do not cut or nip any glass thicker than $4 \text{ mm}$ on site.

- Discuss the direction of the pattern in obscure glass with the architect/principal agent before cutting.

- Treat timber frames and beads with a wood primer to comply with SANS 678. Ensure that the primer is compatible with the glazing compounds.

- Treat steel frames with a primer as described under PAINTING.

- Seal relative areas of masonry and concrete frames with two coats of alkali-resistant sealer that is compatible with the compound.

- Ensure frames are dry, clean, true and square before glazing.

- Ensure rebates are free from projections, for example screws.
Fix steel beads with screws. Fix wood beads with pins. Allow for the thickness of the glass plus at least 3 mm of glazing compound on each face.

Check edges of solar and tinted glass. If damaged, reject before fixing.
Protection and cleaning
Protect glass against harmful splashes and weld splatter.

Clean the glass as soon as practicable after installation with mild soap and water. Ensure cleaning materials are not harmful to plastic glazing material and glazing compounds.

Warranties
SAGGA and SAFIERA glazing certification to be provided by manufacturer upon completion of installation.
Provide a warranty by the manufacturer of the laminated safety glass and/or the hermetically sealed glazing units against delamination and colour degradation for a period of at least 5 (five) years.

Provide written proof that all stages of fabrication and installation of structural glazing have been executed with disciplined quality assurance in accordance with the relevant part of SANS ISO 9000.

Provide written proof that structural sealants are compatible with extrusion surface, glazing tape and glass, together with the regular test reports regarding the adhesion of the sealant to the aluminium frame in accordance with ASTM/C 794-80 (standard test for adhesion-peel of elastomeric joint sealants).

WALL FINISHES
PAINT
Refer to Paint specification and Finishes schedule and relevant room schedules.
TILES
W4 WALL TILE

Name: Non-slip Porcelain tile
Finish: To be confirmed
Size: 600 x 600mm/600mm x 300mm
W9 WALL TILE SPLASHBACK
Name: Glass mosaic tile
Size: 48mmx48mm (300mm high)
Sheet size: 300x300
Col: To be confirmed

Installation Instruction: All wall tiles to be laid onto a clean surface on tile cement mixed with a waterproof bonding agent in accordance with the supplier’s recommendation & instruction by an approved contractor

Other: Grouting gap to be 3mm, normal grout is required in non-permanent wet conditions
Grouting to be used; Light grey Rapid setting grout (20kg) A polymer modified, flexible, high strength, water-resistant grout, requiring no additional additives, drying time in 3hrs.
Sealant for grouting in wet areas to be applied; SABS approved adhesive to be used.

Accessories: 12mm Stainless steel square edge trims to all exposed tiles

**CP–01 CORNER PROTECTION**

Provide Stainless Steel Square Edge Trim (10-12mm thick tile) in standard 2500mm lengths. To be used as corner protector to all tiled wall corners.

Fixing: Appropriate Adhesives or With Self Adhesive 
Colour: Stainless Steel

<table>
<thead>
<tr>
<th>Spec No.</th>
<th>Substrate</th>
<th>Product</th>
<th>Finish</th>
<th>Life expectancy</th>
<th>Locations</th>
<th>Building Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Wood</td>
<td>Non-drip Satin Enamel</td>
<td>Smooth/solvent based</td>
<td>C5: 7 years</td>
<td>Internal Timber</td>
<td>Doors and door frames</td>
</tr>
<tr>
<td>2.</td>
<td>Cement Plaster</td>
<td>Extremely durable, washable, pure acrylic emulsion sheen paint with 12 yr. internal</td>
<td>Smooth/ water based low sheen finish, alkali and water resistant</td>
<td>C5: 10 years</td>
<td>External Walls - Warehouse, external and internal of Wash Bay</td>
<td>Cement plaster/concrete</td>
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<td>4.</td>
<td>Cement Plaster</td>
<td>Low odour premium quality velvet sheen wall coating with 15yr Quality guarantee + Professional Gypsum + Plaster primer</td>
<td>Smooth/ water based velvet sheen, highly washable and stain resistant</td>
<td>C5: 10 years</td>
<td>Internal Walls – Bathroom, Changeroom and Walkway</td>
<td>Cement plaster/concrete</td>
</tr>
<tr>
<td>5.</td>
<td>Cement Plaster</td>
<td>Tough water based epoxy + Sealer</td>
<td>Smooth/ water based – impact and stain resistant</td>
<td>C5: 10 years</td>
<td>Internal walls – Flammable Store and Service pit walls</td>
<td>Cement plaster/concrete</td>
</tr>
<tr>
<td>6.</td>
<td>Cement Plaster</td>
<td>Professional Superior Low Sheen + Professional Water based Gypsum sealer</td>
<td>Smooth/ water based low sheen finish, good washability, stain, UV and alkali resistant</td>
<td>C5: 7 years</td>
<td>Internal Office Walls</td>
<td>Cement plaster/concrete</td>
</tr>
<tr>
<td>7.</td>
<td>Concrete</td>
<td>High sheen road</td>
<td>Smooth/solvent based</td>
<td>C5: 2 years</td>
<td>Internal screed –</td>
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### Part C3: Scope of work

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<th>Particular (Project) Specification</th>
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<tr>
<td>Paint + Sealer</td>
<td>demarcation lines, External Walls – Diesel Tank Storage</td>
</tr>
</tbody>
</table>

| 8. | Cretestone | Non-drip Satin Enamel + Professional Water based Gypsum sealer | Smooth/solvent based | C5: 10 years | Internal Skimmed Walls – various rooms below daedo height |

| 9. | Cretestone | Professional Superior Low Sheen + Professional Water based Gypsum sealer | Smooth/ water based low sheen finish, good washability, stain, UV and alkali resistant | C5: 7 years | Internal Skimmed Walls - above daedo height |

| 10. | Galvanised steel | Premium quality water-based satin finish non-drip enamel with 12yr Quality Guarantee + primer | Smooth/ water based | C5: 7 years | Exterior Galvanised Steel |

**DOOR FINISHES**
Refer to Door schedules and Paint specification above..

**CEILINGS**
**SUSPENDED CEILING SYSTEM**
Type C1 – Suspended Ceiling
15mm Acoustic Fleece-covered biologically absorbable mineral wool ceiling panels with a minimum NRC of 0.85 and a minimum weight of 3kg/m², size 1200 x 600 x 15mm with square-edge and white painted finish, laid on fire rated exposed demountable Butt-cut T24 suspension system, comprising galvanised main tees and cross tees with main tees suspended by means of galvanised hangers at centres not exceeding 1200mm with ceiling perimeter finished with colour-matched Shadowline W-
trim, plugged and screwed at 200mm centres, and all installed to manufacturer's specifications and instructions.

Type C2  Suspended ceiling
12.5mm Vinyl Faced Gypsum Ceiling Panels, face-covered with white embossed vinyl, size 1200 x 600mm, laid on fire rated exposed demountable Butt-cut T24 suspension system, including galvanised main tees and cross tees with main tees suspended by means of galvanised hangers at centres not exceeding 1200mm. Ceiling perimeter finished with colour-matched Shadowline W-trim plugged and screwed at centres not exceeding 200mm, all installed to manufacturer's instructions.

Type C3  Skimmed and painted RC slab
To all Storage Area & Paint Room Ceilings.
Ceiling to be fully skimmed and painted. Refer to paint specification for paint finish.

Accessories:  Shadowline Perimeter trims to all skimmed ceilings.

LIGHTING
Refer to Electrical Engineer and Fire Engineer's specification for all light fittings and emergency lighting requirements respectively.

Installation: Lighting fixtures to be installed as per each supplier specifications. See website for installation specifications. Refer to drawings for more information on lighting layout and small power layout.

SANITARYWARE
Hot and cold water delivery pressure to water mixing components must be balanced when installed.
All plumbing systems and the installation, has to comply with SANS 10254:2012 AND SANS 10252-1.
Refer to sanitary ware schedule for all fittings. Fittings to be installed in strict accordance with manufacturer's installation procedures.
Name:  Frameless Pivot Shower Door with Framed Enclosure with swing door option. Refer to Change room layouts for overall dimensions.
 Colour:  Powder Coated finish. Colour to be determined.
Glass finish: Obscure

All glazing to conform to SANS 549 & SANS 10400 as well as AAAMSA, SAGGA and SASEMA regulations and guidelines. All products are to be locally manufactured with local backup service available for all spare parts, components and gaskets. Manufacturer to provide a 1-year product and installation guarantee with glazing certification to be provided by the manufacturer from the glass plant from which it is supplied upon completion of the project. Shower enclosure to be installed and sealed as per manufacturer’s specification.

CUSTOM BUILT SHOWER BASE
Finish:  Type F2 as per finishes schedule, tiled shower floors. Porcelain tile to be confirmed.
Grout:  Light grey
Sealant: Sealant for grouting in wet areas to be applied; SABS approved adhesive to be used. Other: Grouting gap to be 3mm, waterproof grouting to be used in wet areas

Refer to waterproofing specification for shower base and wall waterproofing

**SHOWER FLOOR DRAIN: CHANGE ROOMS**
Shower floor drain, for screed height at inlet 90–200 mm with EPS base unit, for sound decoupling and receiving the trap, with 8cm x 8cm stainless steel square grating. Floor drain to have a pre-mounted 10cm circumferential sealing fleece. Floor drain to have discharge rate of 0.8l/s and a water seal depth of 50mm. Product to be manufactured in conformance with EN 1253-3 standards and should have a 10yr manufacturer’s guarantee against any material or production failures.

<table>
<thead>
<tr>
<th>DN</th>
<th>d,Ø [mm]</th>
<th>B [cm]</th>
<th>H [cm]</th>
<th>H1[cm]</th>
<th>h [cm]</th>
<th>L [cm]</th>
<th>L1 [cm]</th>
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<td>50</td>
<td>50</td>
<td>13</td>
<td>9</td>
<td>9–20</td>
<td>4.2</td>
<td>30</td>
<td>35.8</td>
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Grating: Stainless steel
Sealant: Around grating - Neutral cure Silicone sealant which conforms to ISO 11600-F-25 LM with a movement capability of ± 50%. The sealant must have an elongation at break of 380% and a Shore A hardness of 29. Product must carry a 10-year crack, craze and crumble warrantee
Other: Min 90mm height, 50mm water seal depth
Collar: Sealing type, fleece laminated

Drawing reference: 357/TD/607

**FRAMELESS MIRROR**

6mm Silvered clear float glass SANS approved copper backed mirror with polished edges all round holed for and screwed with chrome plated dome head screws and washers including plugs.
Size: Various, refer to drawings

**FIXTURES & FITTINGS**

**CHANGEROOM BENCH**
Name: Bench
Finish: Charcoal
12mm Compact High Pressure Laminate, fixed to powder coated mild steel frames with stainless steel hat and coat hooks at 400mm centres.
Size: Made to drawing size

LOCKERS
450mm Deep x 300 wide x 1800mm high Lockers manufactured using 12mm Compact High Pressure Laminate. Carcass comprising of 4mm and 8mm CHPL in white, doors in 12mm CHPL (colour to be confirmed). Ironmongery to include auto return hinge and D-shaped keep for individuals’ own padlocks (no locking mechanism included), lock cover plate and handle, lockers to be individually numbered. Product manufacture to all be as per RSA Design Registration F2011/01674.
Plinth 100mm and locker 1800mm, finishing height 1900mm.

JOINERY
VENEER
Timber
Name: Melamine face board
Finish: American Walnut
Thickness: 32mm

Countertops
Name: 12mm Solid surface sheet fixed to timber substrate to create countertop. Solid surface sheet to be a non-porous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.
Col: To be confirmed

Product to be installed by an approved installer and must be backed up by a 10 year product and installation warranty.

DISPATCH COUNTER
Name: Compact Laminate
Size: 12mm
Colour: To be confirmed
Counter to be supported by metal brackets and metal angles.

SQUARE TUBING
Name: Anodized aluminium square tube
Thickness: 38 x 38mm

JOINERY ACCESSORIES
HANDLES
Name: Door and drawer handles
Finish: Stainless Steel
Size: 230 x 22 x 25mm

RUNNERS
Type: Tandem 552H ¾ Extension Drawer runner.

JOINERY PULL OUT BIN
Name: Soft close recycling pull out bin + bio waste with steel frame fixed to door and inside of unit.

Other:
2 x 35 litre capacity recycling bins, and a 5 litre capacity bio waste bin.
It is suitable for fitting to doors that are 16 - 20mm thick.
Bin slides out leaving the lid inside the cupboard.
The steel lid is suitable for storage of small items such as sponges and gloves.
The bin is encased in a metal frame for fitting to the door and sides of the unit.
The bin pulls out on two full extension soft closing runners.
Metal frame for fitting to the door and sides of the unit.
The combined depth of the larger bins is 500mm.

DUCO FINISHES
Various furniture items Duco sprayed finish.

FIRE DETECTION
Fire detection to comply with Fire Engineer’s specification and be compatible with ACSA’s existing precinct fire detection infrastructure.

All Fire Detection Installers are to be supply accredited with ACSA and registered with the Fire Detection Installers Association (FDIA).

All to comply with SANS fire regulations and relevant SANS codes.
Fire Stopping System to all applicable floor and wall penetrations as well as underside of roofing all to comply with the Fire Engineer’s specification.

C3.6.2 CIVIL

a) Drawings:
b) Specifications:

This document refers to the following “Standard Specifications” issued as part of SANS 1200 publication. This document will apply in its entirety to the Contract. The list below is a selection to cover the work listed in the Schedule of Quantities.

- S.A.B.S. 1200 A : General
- S.A.B.S. 1200 AD : General (Small Dams)
- S.A.B.S. 1200 C : Site Clearance
- S.A.B.S. 1200 DA : Earthworks (Small Works)
- S.A.B.S. 1200 DB : Earthworks (Pipe Trenches)
- S.A.B.S. 1200 DE : Small Earth Dams
- S.A.B.S. 1200 DK : Gabions & Pitching
- S.A.B.S. 1200 DM : Earthworks (Roads, Subgrade)
- S.A.B.S. 1200 G : Concrete (Structural)
- S.A.B.S. 1200 L : Medium-Pressure pipelines
- S.A.B.S. 1200 LB : Bedding (Pipes)
- S.A.B.S. 1200 LC : Cable ducts
- S.A.B.S. 1200 LD : Sewers
- S.A.B.S. 1200 LE : Stormwater Drainage
- S.A.B.S. 1200 LF : Erf Connections (water)
- S.A.B.S. 1200 M : Roads
- S.A.B.S. 1200 ME : Subbase
- S.A.B.S. 1200 MF : Base
- S.A.B.S. 1200 MG : Bituminous Surface Treatment
- S.A.B.S. 1200 MJ : Segmented Paving
- S.A.B.S. 1200 MK : Kerbing and channeling S.A.B.S.
- S.A.B.S. 1200 MM : Ancillary roadworks

A copy of these Standardised Specifications is obtainable through any of the Regional Offices of the S.A.B.S.

Particular specifications that form part of this Contract:

1. Telkom Specification No 325P
2. Guidelines for Human Settlement Planning and Design (“Red Book”)
3. Local authority requirements.
SCOPE

This project specification is set out in two portions. Portion 1 covers a general description of the project, the facilities available, and the requirements to be met. Portion 2 covers variations and additions to standardized/particular specifications that are applicable to the contract.

STATUS

Should any requirement of the project specification conflict with any requirement of the standardized or particular specifications, the requirement of the project specification shall prevail:

PORTION 1: THE WORKS

PS 1 GENERAL DESCRIPTION

This contract covers the following main aspects:

- Earthworks
- Construction of roads and services

PS 2 DESCRIPTION OF SITE

The site is located at the City of Cape Town International Airport precinct. Tower road is to the West of the site, the “Fox trot 5” security gate and the Airport Maintenance is to the North of the site, the Air Chefs building is located to the East of the site and “Thunder City” building is located to the south of the site. A locality map is included on the layout drawings.

PS 3 ACCESS TO SITE

The site is reached via Tower Road, through the Fox Trot 5 gate to the north of the site.

PS 4 ACCESS DURING CONSTRUCTION

The Contractor will maintain access to existing roads in a trafficable condition for the duration of the contract.

The Contractor shall no later than 7 days after appointment submit a proposal for construction and access traffic management for approval by the Engineer. This proposal shall maximise the use of the existing gravel roads on site. The accommodation of access and construction traffic outside the road reserve and off the existing roads and new service routes will not be accepted unless it can be shown that this is the only way in which the work can be constructed.

PS 5 DETAILS OF CONTRACT

The Contract includes the following works: (Quantities are approximate)

Earthworks :
Roads :
Stormwater :
Sewer :
Water :

PS 6 CONTROL OF NOISE AND DUST
All noise and sound levels generated by plant and or equipment shall be carefully controlled and shall adhere to SABS 0103 for maximum noise levels at 35 to 45 dB. No pure sirens or hooters may be used except in emergencies when all staff need to be summoned or required in terms of safety regulations.

A dust control level of 1/50 of the occupational limit shall not be exceeded. All road and stockpile surfaces shall be regularly sprayed to prevent dust generation.

The site shall be kept clear of litter and waste at all times and the contractor shall provide sufficient receptacles in his camp to accommodate the same.

PS 7  WORKING HOURS

Working hours will be restricted to hours accepted by the local authority’s municipal bylaws.

PS 8  CONSTRUCTION PROGRAM

The Contractor will be responsible for the programming of the civil and building works. Before submitting a detailed construction program, the Contractor shall liaise with his sub-contractors to establish the suitability of their programming in terms of delivery of materials and equipment and the times required for completion.

PS 9  SITE FACILITIES AVAILABLE

The Contractor must make his own arrangements with the Local Authority to obtain connections for construction purposes. Any extension of time due to delays resulting from provision of these facilities will not be granted. The Contractor must also pay all costs in connection herewith.

PS 10  SITE FACILITIES REQUIRED

The Engineer will require no site facilities for his own use. The Contractor shall provide facilities for fortnightly site meetings via his own establishment.

In his site establishment, the Contractor shall provide all facilities necessary to comply with the Local Authority regulations with specific reference to safety, control of access, security, dust control, noise control and hygiene.

PS 11  WORKING WITH OTHER CONTRACTORS ON SITE

Contractors from various specialist fields will be working simultaneously on the site at any given time. The Civil Contractor shall make provision for liaison and co-ordination with other contractors in his daily working routine and programming. All costs for this inconvenience must be allowed for in the Preliminary & General section of the schedule of quantities.

PS 12  TESTING

The Contractor shall at his own cost employ the services of a registered commercial laboratory to perform the relevant testing listed below and submit the results to the Engineer for approval. The Contractor shall obtain the approval of the Engineer based on the test results of any specified test before proceeding with subsequent work.

Failure by the Contractor to notify the Engineer or to provide the required information or where specified to perform the required test or obtain the Engineer’s approval to proceed with subsequent work will be grounds...
to exempt the Employer from payment for the associated work and for all subsequent work which could in
the opinion of the Engineer, in any way be affected by the failure of the tested work.

Nothing contained in this clause will relieve the Contractor of the Contractor’s responsibilities under the
specification or in any way limit the tests which the Engineer may call for or perform in terms of the
specification. The Contractor shall make due allowance for testing procedures in his construction program.

PS 12.1 PIPE TRENCHES

The Contractor shall perform density tests on pipe and culvert trenches at 500mm backfill intervals with at
least 3 tests per lift per 80m length of pipe.

PS 12.2 SEWERS

The Contractor shall pressure test all sewers in the presence of the Engineer’s representative after
backfilling and before commencing with layerworks.

PS 12.3 WATER

The Contractor shall pressure test all watermains in the presence of the Engineer’s representative and if
required a representative from City of Cape Town before commencing with layerworks.

PS 12.4 ROADWORKS AND EARTHWORKS

a) Subgrade and fill:
   The Contractor shall perform density tests on subgrade and fill at a rate of 3 tests per 250m² per 250mm
   increment of fill. The Contractor shall notify and obtain the Engineer’s approval when each 500mm
   increment of fill is complete and upon completion of the subgrade before placement of layerworks.

b) Subbase:
   The Contractor shall perform CBR tests and Atterberg and grading analyses on subbase samples taken
   off stockpiles on site. The Contractor shall notify and obtain the Engineer’s approval after delivery of
   material to site, before commencing with mixing and compaction.

   The Contractor shall perform density tests on the completed subbase layer. The Contractor shall notify
   and obtain the Engineer’s approval on completion of the subbase layer.

c) Basecourse:
   The Contractor shall provide Atterberg limits and grading analyses on basecourse from stockpiles on
   site. The Contractor shall notify and obtain the Engineer’s approval after delivery of material to site
   before commencing with mixing and compaction.

   The Contractor shall perform density tests on the completed basecourse layer. The Contractor shall
   notify and obtain the Engineer’s approval on completion of the basecourse layer.

d) Asphalt Surfacing:

   The Contractor shall inform the Engineer of the surfacing date.

   The Contractor shall monitor densities with a nuclear gauge. The Contractor shall provide the Engineer
   with copies of all the premix suppliers test results for premix delivered to site.
The Engineer may order that core samples be taken before approval of the premix is given.

**PS 13  SAND EROSION AND DUST NUISANCE**

The site is in an area of high wind velocities and erosion of exposed sand will occur. The onus shall be solely on the Contractor to control sand erosion and dust nuisance. The Contractor shall be responsible for legitimate claims resulting from damage to adjacent property. The Contractor shall take due care not to unnecessarily disturb the existing vegetation.

Any area which is in the opinion of the Engineer unnecessarily disturbed shall be straw stabilized and seeded in accordance with the application rates and mixtures specified, at the Contractor’s expense.

The Contractor shall be responsible for prevention of material loss by wind erosion and no additional payment will be made for replacing sand lost by wind erosion due to the failure of the Contractor to take sufficient reasonable means to prevent such loss.

**PS 14  ACCOMMODATION OF TRAFFIC**

Provision shall be made for the uninterrupted flow of traffic on existing traffic routes on site at all times. Barricades and signs shall be provided in strict accordance with the SA Road Traffic Signs Manual and to the approval of the Engineer.

**PS 15  WATCHING, LIGHTING, BARRICADING AND ACCESS**

Provision shall be made for the safety of the public. The onus is solely on the Contractor to provide adequate watching, barricading and warning at excavations by day and by night in accordance with the Occupational Health and Safety Act, Act No. 85 of 1993 & Regulations.

Provision shall be made for all inhabited properties to have pedestrian access at all times. Works shall be so programmed that existing properties have full vehicular access at least between 17h00 and 08h30.

**PS 16  ENVIRONMENTAL MANAGEMENT PLAN**

The Contractor shall study and be familiar with all the requirements, remedies, principles and procedures as set out in the EMP.

**PS 17  SOURCE OF CONSTRUCTION MATERIAL**

The Contractor shall be responsible for the location and procurement of all imported materials. Rates tendered for all imported material shall include haulage. All manufactured materials shall carry the mark of SABS approval.

**PS 18  CONSTRUCTION CAMP**

The Contractor shall be responsible for making the necessary arrangements with the Local Authority for establishing his camp on site.

**PS 19  SURVEY BEACONS**

Before the commencement of construction, the Contractor will be provided with a General Survey Plan of the site and all boundary pegs and survey reference marks will be pointed out and handed over to the Contractor for protection throughout the contract period.
Any boundary pegs or survey reference marks that are disturbed, covered or removed by the Contractor without the prior consent of the Engineer shall be replaced by a Registered Professional Land Surveyor at the Contractor's expense, and a certificate signed by that Professional Land Surveyor listing the actual beacons replaced shall be supplied to the Engineer. All costs involved will be recovered from the Contractor by deduction from the monthly certificate of payment.

Survey pegs that must be removed or covered in accordance with the finished dimensions of any part of the works or of any temporary works for which the Contractor has received the prior written consent of the Engineer shall be replaced at the expense of the Employer.

At the end of the contract, the Contractor shall point out and hand over to the Engineer, all boundary pegs and survey marks.

In heavily bushed areas on site the Contractor will be required to partially clear the approximate alignment of roads and services sufficiently to enable the Employers Land Surveyor to establish the necessary boundary pegs to enable the works to be set out. The Land Surveyor will be available for this purpose and the Contractor shall liaise with him to co-ordinate the placing of pegs to follow on behind the Contractors initial clearing work.

**PS 20 EXISTING SERVICES**

The position of existing services is shown approximately on the drawings based on information provided by the Local Authority. Where work is to be carried out in the vicinity of these services, the Contractor shall exercise the necessary care to prevent damage to existing services, establish the actual position of these services and liaise with the relevant municipal department to ensure that the Local Authorities requirements are complied with. Any damage to underground or overhead services caused by the Contractor shall be repaired at the Contractor's cost.

All refundable amounts for guarantee/deposits/wayleaves etc. shall be paid for under the relevant item in the Preliminary and General section of the Schedule of Quantities. This item will be reduced to zero in the Practical Completion Certificate. The onus is on the Contractor to recover any amount due from the relevant authorities. Any damage to an existing service results in the Contractor forfeiting the amount paid and the damage will be for the Contractor's account.

**PS 21 CONNECTIONS TO EXISTING SERVICES**

The Contractor shall ensure that all connections to existing services are checked for position and level prior to any construction.

**PS 22 SECURITY CONTROL**

The contractor will be responsible for his own security.

**PS 23 SPOIL MATERIAL AND SPOIL SITE**

All surplus material to be spoiled at a spoil site of contractor's choice. Material to be spoiled on neighbouring sited only with clients consent.

**PS 24 AS-BUILT INFORMATION**
The Engineer will provide the Contractor with a full set of the latest drawings for the purpose of marking up as-built information. The Contractor shall mark up all as-built positions and levels. Payment will be deemed to fall under the Contractor’s fixed charge Preliminary & General items.

**PS 25 SOURCE OF MATERIALS FOR ROADS**

The Contractor will be responsible for locating sources of imported materials. The onus of providing materials which conform to the Specification rests solely on the Contractor. The Engineer will only give his final approval for the use of materials after samples from stockpiles on site have been tested.

The tendered prices for imported materials shall include all transport costs.

**PS 26 AVAILABILITY OF MATERIALS**

It is the Contractor’s responsibility to confirm that the necessary materials are available to successfully complete the Contract within the Contractor Period. No claims based on the non-availability of materials will be considered.
PORTION 2: VARIATIONS TO REQUIREMENTS OF SPECIFICATIONS LISTED

STATUS

PS A to PS SD inclusive sets out any additional data and clauses that are required to complete, amend or add to the terms of the applicable standardized and particular specifications to render them suitable for the project.

The Standardised Specifications forming part of the Contract have been written to cover all phases of work usually encountered in Civil Engineering contracts and they may therefore cover items of work not encountered in the contract of this project. Should any requirement of the Project Specification conflict with any requirement of the Standardised Specification listed, the requirements of the Project Specification shall prevail.

PSA 3.1 Material Standards

All pipes, fitting and materials used in the Works must bear the official standardization mark of the SABS, where applicable. The mark on a pipe shall be visible from above, after the pipe is laid.

Rubber articles, including pipe insertion or joint rings, shall be stored in a suitable shed and kept away from sunlight, oil or grease.

Large items not normally stored in a building shall be neatly stacked or laid out on suitable cleared areas on the Site. Grass or vegetation shall not be allowed to grow long in the storage area and the material shall be kept free of dust and mud, and be protected from stormwater. Pipes shall be handled and stacked in accordance with the manufacturer’s recommendations, special care being taken to avoid stacking to excessive heights and placing over hard objects. PVC pipes shall be protected from direct sunlight by suitable covers.

Every precaution shall be taken to keep cement dry and prevent access of moisture to it from the time it leaves the place of manufacture, until it is required for use on the Site. Bags of cement, which show any degree of hydration and setting, shall be removed from the Site of the Works and replaced at the Contractor’s expense.

Materials shall be handled with proper care at all times. Under no circumstance may materials be dropped from vehicles. Large pipes shall be lifted or lowered only by means of suitable hoisting equipment.

PSA 4.2 Removal of Site Establishment

Upon completion of the Works and with the written consent of the Engineer, the site establishment shall be removed. The whole area of the site establishment, access roads and other working areas, shall be cleared and where necessary and appropriately re-gassed. Where road or sidewalk surfaces have been damaged by the Contractor, re-surfacing will be necessary. Damaged kerbing and channeling shall also be replaced. Walls, fences and hedges and access to private properties, damaged by the Contractor, shall also be replaced and/or repaired. The cost of all such remedial works will be held to be included in the rate for removal of site establishment.

PSA 5.1.1 Setting Out

The Engineer will provide co-ordinates for setting out reference points as well as a suitable benchmark, and the Contractor will be responsible for the setting out of the Works from these. The Contractor should
ensure that the boundary beacons are not disturbed without the Engineer’s consent. On completion of the contract the boundary beacons shall be clearly marked by the Contractor and handed over to the Employer.

**PSA 5.2  \textbf{Barricading}**

Barricading in traffic areas shall be to the approval of the Local Authorities Traffic Department and to the requirements of the South African Road Traffic Signs Manual. The Contractor shall be responsible for maintaining the barricading in good order until completion of the works. All open excavation in areas readily accessible to the public shall be protected in a similar manner so as to ensure safety of the public during day and night time.

**PSA 5.4  \textbf{Protection of the Works}**

The Contractor shall be responsible for barricading the intersections between existing and new works. Work shall be executed in such a method as to ensure that existing roads and services are not damaged. Existing services to which new services are to be connected shall be exposed and protected prior to the commencement of the Works.

**PSA 6.2  \textbf{Tolerances – Degree of Accuracy}**

All works shall be carried out to a degree of Accuracy II as specified in the relevant Standard Specifications unless stated otherwise in the Project Specification.

**PSA 7.1  \textbf{Testing Pipelines}**

Every completed layer or section of the Works shall be subject to check testing by the Contractor. Once the Contractor is satisfied with the standard of the work, the Engineer will be requested to perform acceptance testing for the particular section. When giving notice, the Contractor shall provide the Engineer with the results of the Contractor’s testing indicating that the work is to specification.

Failure by the Contractor to notify the Engineer or to provide the required information or, where specified, to perform the required test, will be grounds to exempt the Employer from payment for the associated work and for all subsequent work which would be affected by the failure of the work to be tested.

The Engineer will be under no obligation to the Contractor to perform the tests. If the Engineer elects not to perform a particular test after notification by the Contractor, the Engineer will issue the Contractor with a written instruction to proceed with the relevant works without the acceptance test being performed.

Nothing contained in this clause will relieve the Contractor of any responsibility under the specification or in any way limit the tests, which the Engineer may call for or perform in terms of the specification.

**PSA 8.1  \textbf{Measurement And Payment: Sum Stated Provisionally The Engineer}**

Sums stated provisionally in the schedule by the Engineer for sub-contractor work may be omitted from the Contract by the Employer.

The amount of Surety for the contract will be 10% of the Nett Total of Tender less the provisional amounts stated in the schedule, that are to be undertaken by sub-contractors or specialist contractors.
PSAB 2.2 Site Instructions

The Engineer shall supply a site instruction book for specific use on the site.

The Contractor shall supply a triplicate book for the Contractor’s site correspondence and inspection requests to the Engineer’s Representative, at the Contractor’s cost. Reasonable notice time shall be allowed prior to inspections. All inspection requests and approval/disapproval thereof shall be recorded by the site staff in writing.

PSAB 3.1 Name Boards

Erection of the Contractor’s name board will be allowed in the area of the works, at a position approved by the Engineer, who may at any time order its removal if any reasonable objections are received.

One project board shall be erected within 14 days of the commencement of construction and shall be placed where ordered by the Engineer. Any damage to this board shall be repaired within 14 days of a written instruction from the Engineer. For details of the boards refer to the Standard Drawings contained in this document.

The board shall be manufactured from materials specified in Clause 3.1 of SABS 1200 AB but shall conform in the printing, decorating and detail with the recommendations for the Standard Board of the South African Association of Consulting Engineers.

All name boards shall be removed 14 days prior to the date of Final Approval Certificate.

PSAB 5.2 Engineers Office

The Engineer requires no facilities for his own exclusive use but requires the Contractor to allow the use of facilities on site to a reasonable extent. The Contractor must provide a room for use as a meeting place for site meetings. Up to 10 people may attend site meetings.

PSC 3.1 Disposal of Material

Notwithstanding the provisions of SABS 1200 C3.1, the Contractor shall make arrangements for locating an acceptable dumping site. Any charges for use of such dumping site or other costs involved with disposal of material off site, including transport, will be deemed to be included in the rates for clearing operations.

The site clearance will be limited to the areas of construction such as the road reserves and along service routes.

PSC 5.3 Bush Clearing

The majority of the site is made up of bush covered farm land, which must be cleared and chipped for stabilization purposes. The contractor will attempt to arrange with and employ the local community to undertake this work. The contractor will also make available the necessary tools and machinery required for the local community to undertake this work satisfactorily. The cleared bush material will have to be stockpiled for the chipping operation.
PSC 5.6  Conservation of Topsoil

After the bush has been cleared and removed, topsoil, containing existing grass, must be removed to the specified depth and stockpiled for spreading on completed cut and fill areas or designated areas, where required.

The specified levels in both cut and fill areas apply to the top of the subsoil layer. In areas of cut, excavation must therefore be lowered by the thickness of the topsoil layer when spread and in areas of fill the filling must allow for the thickness of topsoil to achieve final specified levels.

Topsoil shall be stripped and spread again only in areas where the cut exceeds 500mm and in areas where the fill to be constructed will exceed 500mm. If topsoil is to be stripped and/or spread in other areas this will be specifically directed by the Engineer.

Stockpiles may not exceed a height of 2m and shall be shaped to ensure drainage can take place. Stockpiling may also take place in windows if material will be moved directly from stripping to spreading. Every effort should be made to prevent contamination of topsoil by Acacia seeds and plants.

All topsoil from cleared areas on which the permanent works are to be constructed shall be removed and stockpiled for re-use in clearly demarcated neat stockpiles, not exceeding 1.5 metres in height. Care shall be taken not to compact the material in the stockpile and in particular by the trucks tipping to stockpile. The Contractor shall take the necessary steps to avoid erosion of the stockpiles.

PSC 8.2  Measurement and Payment

Bush clearing shall be measured in square metres from the drawings and the rate tendered shall include for all items required to carry out the bush clearing as well as the removal of roots and chipping of cleared vegetation.

Stripping and spreading of topsoil shall be measured from the drawings in plan area. The rates tendered shall be taken to include all items required to complete the work and shall in all cases include for stockpiling and haulage.

PSD  EARTHWORKS

PSD 3  Materials

PSD 3.1  Classification for Excavation Purposes

Delete SABS 1200 D Sub-Clause 3.1 and replace as follows:

PSD 3.1.1  Method of Classifying

The Contractor may use any method he chooses to excavate any class of material but his chosen method of excavation shall not determine the classification of the excavation. The Engineer or his Representative will decide on the classification of the materials. In the first instance the classification will be based on inspection of the material to be excavated and on the criteria given in PSD 3.1.2.

PSD 3.1.2  Classes of Excavation
All material encountered in any excavations for any purpose including restricted excavations will be classified as follows:

(i) All Excavations
   Excavation in all materials as per SABS 1200 D – Clause 3.1.2 (a).

(ii) Intermediate Excavation
   Excavation in undisturbed and weathered Malmesbury Shale (clay) as per SABS 1200 D Clause 3.1.2 (b).

(iii) Hard Rock Excavation
   Hard Rock excavation shall be excavated in material that cannot be efficiently removed without blasting or without wedging and splitting or be in a material, which cannot be excavated by a loader/backhoe or by a scraper without prior, ripping.

(iv) Brick Rubble Excavation
   Excavation in loose or compacted waste brick rubble mixed with fine-sandy or clayey material.

**PSD 3.1.3 Nature of Material to Be Excavated**

The Tenderer shall make himself acquainted with the nature of the material to be excavated before submitting his tender, and the submission of the tender shall be deemed to be an acknowledgement that this has been done.

**PSD 5.1.2 Protection of Services**

Notwithstanding the requirements of SABS 1200D clause 8.3.8, the cost for detection, exposure and protection of existing service will be measured per service crossed.

Existing water, stormwater and sewerage services as shown on the drawings shall be protected during the construction period. All damages to these services are to be repaired by the Contractor at the Contractor’s cost.

**PSD 5.1.5 Reinstatement of Roads**

The material used to re-instate/tie in roads shall be at least equal in quality to that in the existing road profile.

**PSD 5.2 Methods and Procedures**

**PSD 5.2.2 Excavation**

Stockpile heights shall not exceed 1.5m and shall be shaped with side-slopes of 1 vertical to 3 horizontal. The Contractor must program his work such that temporary stockpiling is reduced to a minimum. Stockpiling will not be measured for payment unless expressly scheduled.

Materials shall be selected, excavated, stockpiled and backfilled in accordance with the following general guidelines:

Sufficient material from excavations suitable for use as backfill or fill shall be stockpiled on site or placed directly to fill or backfill.

Surplus material from one part of the site shall be used as fill or backfill at other parts of the site where there is a deficiency in fill or backfill material. Haul within the site will not be measured for payment.
The rate shall include for all costs to move, shape and compact to 100% Mod AASHTO density.

**Cut and Borrow to Fill**

After an area has been stripped in PSC, the excavation shall be carried out to the levels to which the ground has to be reduced and the materials excavated shall be used to form the designated embankments.

Where the quantity of material from excavations is either excessive or insufficient to form the specified embankments, the Contractor shall notify the Engineer immediately. No material shall be borrowed or spoiled by the Contractor unless instructed to do so by the Engineer.

Earthworks must be carried out with plant that will ensure that the area will not be disturbed beyond the extent of the works. Particular care must be taken to prevent wind erosion.

**PSD 5.2.3 Disposal**

Excess material cut from excavations shall be disposed of off site at a location determined by the client, within 1000m of the site.

Material below the indicated levels of the various roads which, in the opinion of the Engineer, is unsuitable shall be removed to spoil. Clayey material would constitute unsuitable material. Excavation of unsuitable material will be measured by the cubic metre tight. The rate shall include excavation, loading and disposal off-site by the Contractor. The Contractor shall replace unsuitable material with selected sand backfill, compacted to 100% Mod AASHTO density. The volume will be measured by the cubic metre tight and the rate shall include backfilling and compacting in layers to the specified density.

**PSD 5.2.3 Placing and Compaction**

In-place subgrade shall be compacted to minimum 93% Mod AASHTO density (100% for sand) to a depth of 300mm.

All sandy fill material shall be compacted in layers not exceeding 300mm at optimum moisture content to 100% Mod AASHTO.

**PSD 5.2.4.3 Stabilization**

Sand shall be stabilized by means of straw rotavated or disk harrowed into the upper 150mm of the completed platforms. The stockpiles of chipped bush (mulch) will be utilized for stabilization purposes, by spreading this material over the fill area surface.

Immediately after suitable areas of the individual have been cut to level and are accepted, the contractor shall carry out the stabilization process. This shall be done immediately so as to avoid loss of material from completed sections.

Baled straw shall be spread so that the coverage will be 500 bales per hectare. On areas where machine methods are shown to be impractical, the straw may be worked in by hand. These operations shall not be attempted when the wind strength is such as to remove straw before it can be rotavated in. This requirement will mean that the Contractor will have to be in a position to take advantage of periods of calm at short notice. The mulch shall be spread at 1m$^3$ per 20m$^2$.
The rates tendered in the schedule shall be taken to be inclusive of all items required to carry out and complete the straw and mulch stabilization of the sand per hectare. Payment will be made per hectare or square metre actually stabilized as measured on the drawings.

**PSD**

**Free-Haul**

5.2.5.1

All haulage within 1,0km of the site limits shall be regarded as free-haul.

**PSD**

**Overhaul**

5.2.5.2

No overhaul shall apply to material moved within the boundaries of the site. The rate tendered for cut to fill on site shall include for all haulage of materials anywhere within the boundaries of the site. The rate tendered for borrow to fill shall include for haulage of all imported materials to the required position on site from the borrow site provided by the client.

**PSD 6.1**

**Positions, Dimensions and Levels**

Degree of Accuracy II shall apply, with the following exceptions:

The work shall be finished to the following permissible deviations (PD):

1. Position: PD from designated position of any point measured from the nearest grid line plus or minus 200mm.
2. Finished levels: PD from designated levels with reference to nearest transferred bench mark plus or minus 25mm.

**PSD 8.1**

**Measurement and Payment**

Cut and borrow to fill shall be measured in accordance with the actual constructed levels as accepted by the Engineer. The actual quantity for payment will be compacted fill volume as calculated from the drawings.

The rates tendered for these items shall be taken to include all items required to carry out the work and shall in all cases include for the haulage of materials as specified.

**PSDA**

**EARTHWORKS (SMALL WORKS)**

**PSDA**

**Excavated Material and Preparation Of Site**

5.1.6 & 5.2.1

Excavated cut material (sand) suitable for fill, shall be used for backfill where required and compacted to 100%. All unsuitable material shall be disposed of on sites located by the Contractor to the approval of the Engineer. Before removing any material from site, the approval of the Engineer is required, as the material may be suitable for mass fill elsewhere on site.

**PSDA 8.3.4**

**Imported Materials**
Delete sentence beginning with "Importation from different sources..." and replace with "Contractor shall determine his own source of supply of sand fill.

**PSDB EARTHWORKS (PIPE TRENCHES)**

**PSDB 3.1 Classes of Excavation**

The Tenderer shall make himself acquainted with the nature of the material to be excavated before submitting his tender, and the submission of the tender shall be deemed to be an acknowledgement that this has been done.

**PSDB 3.2 Bedding**

All bedding shall be Class C unless otherwise ordered by the Engineer.

**PSDB 3.5 Backfilling**

During excavation of trenches, suitable material shall be separated from unsuitable material for use as backfill. All backfill shall be compacted to 95% Mod. AASHTO. The rate tendered for imported material shall include overhaul.

**PSDB Areas Subject To Traffic Loading**

All trenches shall be considered to be subject to traffic loading with respect to provisions of above clauses. Rates tendered for excavation and backfill shall include for requirements of all these clauses.

**SDB 3.6 Trenches Across Surfaced Roads and Sidewalks**

The existing surface must be neatly cut in a straight line with a saw, to a width to suit the Contractor's requirements. The backfill to the pipes will be subbase quality material compacted to 93% Mod. AASHTO. The layers will be as measured in the Bill. The measurement of reinstatement shall be in square metres.

**PSDB 4.2 Dealing With Water**

The cost of dealing with water will be held to have been included in the item allowed under Preliminary & General item. The management of ground water and stormwater remains the responsibility of the contractor.

**PSDB Stormwater, Seepage and Dewatering: Throughout The Works**

In addition to the Contractor's responsibilities for dealing with water, the Engineer may order additional dewatering to be done. Where the use of a layer of crushed stone in the trench bottom has been authorized by the Engineer, it will be measured by volume calculated according to length multiplied by the minimum base width and specified thickness.

The tendered rate shall cover the cost of preparation of the trench bottom to accommodate the layer of stone, the supply and placing of the layer of stone over at least the specified width and all related activities in order to produce a stable platform.

**PSDB 5.1.4 Protection of Services**
Part C3: Scope of work

Notwithstanding the requirements of SABS 1200DB clause 8.3.5 the cost for protection of existing services intersection and adjoining a trench will be measured per service crossed.

**PSDB 5.2 Minimum Base Widths**

A side allowance of 300mm shall be applicable to pipes of diameter less than 125mm.

Backfill material shall be suitable material excavated from trenches, suitable excess cut material, or borrowed from site as ordered by the Engineer.

**PSDB 5.4 Measurement of Trench Depth**

Notwithstanding the requirements of clause 8.1.2 of SABS 1200DB – 1989, trench excavation for pipes will be measured from the surface of the ground [as defined in 8.1.2 (c)] to the invert of the pipe.

**PSDB 5.5 Trench Bottom**

Where the Contractor's method of working results in quagmire conditions in the trench bottom, the Contractor shall excavate and stabilize the trench at his own cost.

**PSDB 5.6.3 Surplus Material**

Surplus material from trench excavations shall be spoiled as described in PSDM 5.2.2.3. No overhaul shall be payable. The Contractor shall make his own arrangements for a suitable spoil site off site.

**Unsuitable Material**

Material unsuitable for backfilling of trenches or roadworks shall be spoiled off site to a location identified by the Contractor, only upon authorization by the Engineer.

Protection against risk of collapse shall be solely the responsibility of the Contractor and the rates tendered for excavation and backfilling and for the supply of imported sand backfill extra-over the rates for excavation and backfilling, shall be deemed to include for risk of collapse and overbreak.

The Contractor shall take all precautions to limit the width of excavations including the use of small buckets on excavators.

**PSDB 5.9 Re-Instatement of Roads And Road Crossings**

All road crossings shall be backfilled and fully reinstated immediately after laying of the underlying pipework has been completed.

**PSDB 8.3.2 Pipes in Common Trench**

Wherever pipes are laid in a common trench e.g. watermains in stormwater trenches, excavation and backfilling shall be paid for only once for the deeper trench.

**PSDB 8.3.2.1 Depth of Excavation**

Please note that the depth increments for measurement of excavation may be amended in the Schedule of Quantities and may not be in accordance with the Standard Specification.

**PSDB 8.3.3.1 (c) Make-Up Deficiency in Backfill**
The Contractors attention is drawn to this clause, which shall include for the removal of unsuitable material including rock to the Contractors spoil site including haulage as well as the importation of material to make up the deficiency.

**PSDE**

**EARTH DAMS**

**Damage to Vegetation**

5.1.3

Any damage to the existing Fynbos vegetation beyond the property boundary or within any protected areas will be reinstated by the Contractor at his own cost.

**PSDE**

**Borrow Pits**

5.2.2.3

The Public Open Space at the retention dams has been designated as the borrow area. The retention dam walls will also be filled with material from the site which will consist of road box material and clean fill. This fill will be watered and compacted to a minimum of 95% Mod Aashto.

All stripped topsoil will be placed on the completed retention dam walls on completion of the earthworks operation. A minimum of 300mm of clean fill material will make up the top layer of earthworks fill before the topsoil is replaced.

**PSDE**

**Placing of Embankment Material**

5.2.3.2

Material shall be placed in layers not exceeding 300mm thickness and compacted to a minimum of 95% Mod Aashto. Material shall be placed, spread, formed and compacted longitudinally with the length of the retention dam wall.

**PSDE**

**Finishing**

5.2.4.1

The contractor is to notify the engineer of his intention to undertake the final shaping and trimming of the retention dam walls before this work is undertaken.

**PSDE**

**Transport of Material**

5.2.5

All haulage of material within the site boundaries will be freehaul and no overhaul will apply to the Contract.

**PSDM**

**EARTHWORKS – ROADS**

**Removal of Unsuitable Material**

5.2.3.2

During excavation in the road prism, unsuitable material shall be removed from the roadbed. The rate tendered shall include for the removal of this material to spoil and the replacement and compaction with suitable material selected from other excavations on site.

**PSDM**

**In-Situ Treatment**

5.2.3.3

In-situ material below the roadway shall be ripped and compacted to 93% Mod AASHTO before placing of any fill or layer works. Unsuitable material shall be removed and replaced with fill. This operation shall be measured as described in PSDM 5.2.3.2 and will not be classified as a selected layer irrespective of its location in the road prism.
Verges

The verges on road sides shall be built to levels shown on the drawings. The cut to fill rate will also include for compaction and trimming to verges. All verges will be dressed with 100mm of topsoil.

MEDIUM PRESSURE PIPELINES

Materials Pipes

All pipes shall be full lengths of uPVC Class 12, unless otherwise specified.

All pipes are to be jointed by using approved spigot and socket joints comprising a rubber compression ring incorporating a hydraulic seal.

SOLVENT WELDING WILL NOT BE PERMITTED

Cut pipes shall only be used at pipe junctions and street intersections to position valves and specials as shown on the drawings or as may be indicated by the Engineer. Written permission shall be obtained from the Engineer to use cut pipes in any other portions of the pipeline.

The cost of cutting and bevelling of the uPVC pipe must be included in the laying and jointing rates.

Only CI or fabricated steel specials are to be used in conjunction with uPVC pipelines with the exception of those particular fittings, which are purpose moulded. No fittings made up from welded segments will be accepted.

Fire Hydrants

The fire hydrant valve must be a 75mm inlet Ainsworth RSV hydrant valve or similar approved with London round thread with cast iron cap and safety chain, rising spindle with cap for turning key (as for sluice valves) to SABS 664/74 shall be used.

Working pressure: 1,3 MPa
Test pressure: 2,00 MPa

The fire hydrant shall be bolted on the flanged T-side of a cast iron T-piece with plain ends for coupling to uPVC pressure pipes.

A SABS 558 type 5 cast iron fire hydrant box 450 x 300mm marked F.H. and painted in bright yellow oil paint shall be constructed over all hydrants.

The F.H. and the F.H. box shall be positioned perpendicular to the water main.

Hydrants shall be marked with permanent marking plates.

Gate valves

Valves shall be cast iron resilient seat valves to SABS 664/1974.

Valves shall open clockwise, have non-rising spindles of high quality high tensile manganese bronze fitted with caps suitable for use with a key in the vertical position.
The direction of rotation for closing shall be permanently marked on the cap-top.

Valves shall be coated before delivery, both internally and externally with a suitable bitumastic paint free of phenols.

Valves shall be heavy duty class 16 on all sizes.

Valves and special fittings shall be socketed for normal jointing.

**PSL 3.11 Cast Iron Manhole Covers and Frames**

All cast iron covers and frames, bell tobies and stopcock boxes shall comply with the requirements of SABS 558: 1973.

a) Manhole cover and frame  - Type 9D (Medium Duty – Sidewalk)
   - Type 2A (Heavy Duty – Road)
b) Circular valve box  - Type 3A
   - Type 3B
c) Rectangular hydrant box  - Type 5
d) Circular stopcock box  - Type 7
e) Square stopcock box  - Type 11A

**PSL 5.1.4 Cover Over Pipes**

The cover to all pipes, measured below finished ground level, shall be:

- 100mm to 200mm bore  600mm (minimum) – 750mm (maximum)
- 250mm bore and larger  750mm (minimum) – 1000mm (maximum)

House service connections 300mm (minimum) 500mm (maximum).

**PSL 5.10 Chlorination and Scouring**

**PSL 5.10(a) Sterilisation of Pipeline**

The entire pipe system must be disinfected by the Contractor before being commissioned. A suitable solution of 50 parts per million of free chlorine must be used for this purpose.

The pipe must be filled with this solution and left standing for 24 hours. Thereafter the residual solution must be flushed from the pipeline with clean water into the nearest sewer or as agreed to by the Engineer.

The Contractor shall, at his own cost, take all the necessary precautions for the protection of life and property during the cleansing process. The Contractor shall allow for all associated costs for this work in his tender price.

**PSL 5.10(c) Bacteriological Testing**

The Contractor shall take samples of bacteriological examination and deliver same to the Local Authority Medical Officer of Health for testing. Should such samples fail to pass the standard test, the reticulation shall be re-chlorinated by the Contractor to the satisfaction of the Engineer until subsequent samples pass the test.

The Contractor shall allow for all associated costs for this work in his tender price.
The test pressure shall be 1.8MPa.

**BEDDING PIPES**

**Materials**

**Materials - Class**

Bedding to all pipes shall be 100mm thick Class C. Material selected from trench excavations will be suitable as bedding and selected fill. Where instructed bedding shall be imported from an area of the Contractor's choice. No overhaul shall be payable on imported material. At all road crossings bedding and selected fill shall be selected sandy material compacted to 95% Mod AASHTO. In excessive wet areas, the Contractor may apply to the Engineer for the importation of a crushed stone bedding.

The Contractor's attention is drawn to the fact that bedding materials selected from any excavation on site will be deemed to be "from trench excavation" and will therefore not qualify as imported bedding.

**Selection**

The Contractor shall select and stockpile suitable material to the Engineer's approval for use as bedding and backfill. Imported bedding sand shall be free from vegetable matter.

**DUCTS**

**Materials**

Ducts for electrical services shall be uPVC Class 34 supplied by the Contractor. The rate tendered by the Contractor shall include for the installation of draw-wires, proving and end caps.

**Duct Lengths**

Electricity ducts shall run from 1.0m outside erf boundary to 1.0m inside erf boundary.

**Cable Markers**

Add the following to the last paragraph of Sub-Clause 8.2.8:

The tendered rate shall also include for all costs involved in the marking on the kerbs and for the sealing and the marking of duct ends and the re-excavation and backfilling for marking purposes.

**SEWERAGE**

**uPVC Pipes:**

Class 34 pipes and fittings conforming to SABS 791, pipes with suitably approved rubber ringed flexible joints and flexible connections to manholes shall be used. Structural walled pipes will not be considered for use on the site.
PSLD 5.6  Manholes:

Sewers shall be brickwork or precast concrete rings with sealed joints with dolomitic aggregate at the Contractor’s discretion.

Top of the cover slab to the underside of the frame (i.e. chimney height) may be a maximum of 3 brick courses.

The payment depth for manholes shall be from cover level to invert level irrespective of depth of excavation.

Brick manhole walls must be plastered externally and flush pointed internally.

Precast concrete chambers are to be seated on brick dwarf wall which extended at least one course above the crown of the highest pipe.

Manholes deeper than 800mm will be fitted with Calcimite stepirons.

PSLD 5.6.8  Cover Levels of Finished Manholes

1. In the road reserve the cover level shall be flush with the finished road level, footpath, or verge.
2. In undeveloped erven or areas the cover level shall be 100mm above ground level.

PSLD 7.2  Testing

All acceptance tests shall be carried out in the presence of the Engineer in accordance with the air test.

PSLD 8  Measurements and Payment

PSLD 8.2.5 The cost of the excavation in all materials and subsequent backfill to manholes will be included in the rate for the construction of the manhole.

PSLD 8.2.9  Erf Connection Markers

Marker posts shall be positioned at each erf connection. They will be a Y standard fence dropper and shall extend 200mm above the ground. This 200mm shall be painted red.

PSLD 8.2.11  Connections to Existing Sewer

The rate for this item will include for extra excavation, backfilling, breaking into the manhole, dealing with the existing flow, connecting and modifying the benching, ensuring no foreign matter enters the existing sewer and making good to the Engineer’s satisfaction.

PSLD 8.2.12  Adjustment to Cover Levels of Existing Manhole

The unit of measurement for adjustment of the cover and frame of existing manholes shall be by the number of adjustments.

An item will be provided for each adjustment to an existing manhole and the rate tendered shall include full compensation for the removal and clearing of the cover and frame for re-use, the removal of chimney and reduces slab, the adjustment to the walls to obtain the correct level, the installation of the cover slab and the rebuilding of the chimney to the Local Authorities standards, the installation of the cover and frame to suit the terrain, dealing with the existing flow and preventing unacceptable debris from entering the drain.
Concrete pipes shall be spigot and socket type with rubber rings class 100D. All structures shall be in plastered brickwork. All concrete shall be 25 MPa.

Notwithstanding the requirements of Sub-Clause 3.4.3 and the specification drawings bound in the document all covers and frames shall be Type 2A in accordance with SABS 558, unless otherwise specified. Chimney heights in manholes shall not exceed 250mm. Cast iron gratings are to be attached to each other and their frames with a 38 x 6mm galvanized steel chain. Chain ends to be welded.

Manholes may be constructed of precast concrete if accepted by the Local Authority.

For measurement and payment purposes the depth of a manhole is defined as the depth from the top of the cover to the invert level of the manhole.

The cost of extra excavation and backfill to manholes will be included in the rate for the construction of the manhole. This shall apply to excavations in all matters.

The unit of measurement for connecting into existing manholes/catchpits shall be by the number of connections.

An item will be provided for each connection to an existing manhole/catchpit and the rate tendered shall include full compensation for breaking into the manhole, connecting the pipe, modifying or enhancing the benching, cutting pipes, dealing with the existing flow, preventing unacceptable debris entering the drain line and making good any benching, finish walls, covers and frames.

The unit of measurement for adjustment to an existing manhole/catchpit shall be by the number of adjustments.

An item will be provided for each adjustment to an existing manhole/catchpit and the rate tendered shall include full compensation for removal and clearing of cover and frame for re-use, the removal of chimney and reduces slab, the adjustment to the walls to obtain the correct level, the installation of the cover slab and the rebuilding of the chimney to the Local Authorities standards, the installation of the cover and frame to suit the terrain, dealing with the existing flow and preventing unacceptable debris entering the drain line.
PSLF 3.1.7 **Saddles**

Ductile iron saddles shall be used. The saddle and ferrules must be wrapped with 3 layers of denso tape. Payment will be included in the rate for supply and fitting of the items.

PSLF 5.2.2 **Provision of Erf Connections**

Erf connections shall be made to all erven. The leadings must be laid perpendicular to the watermain and in a straight line with coupling between the watermain and 1m inside the property boundary. At the connection to the main, the pipe must be curved with a radius of not less that 300m. The outlet shall be in the direction of the watermain so that the flow in the curved portion of the connection is anti-clockwise. Connections crossing roads shall be at a minimum depth of at least 500mm below final road level.

Connections shall consist of a 28mm Polycop or similar approved pipe extending 1000mm over the erf boundary 1000mm from a side boundary. The end of the leading shall be plugged with a suitable removable watertight plug.

Payment shall be per meter and shall include for excavation to a depth of 1m, bedding and backfilling and compacting to 100% Mod AASHTO and plugging the pipe ends.

PSME 3.2.1 **Sub-Base Material**

The Contractor shall obtain subbase material from a source of his own choice. The unit rate tendered shall include all procurement costs such as royalties, stripping of overburden, reinstatement of borrow-pit, etc. Haulage shall be included in the rates. The material standards shall comply with the provisions of sub clause 3.2.1 for unstabilised material.

The subbase layer shall consist of a mixture of crushed stone subbase or natural gravel (G5).

The resulting mixture shall have a minimum CBR of 45 to 95% Mod AASHTO and shall be compacted to a minimum density of 95% Mod AASHTO in the layer thickness as specified.

PSME 5.4.4 **Compaction**

Add the following new sub-clause 5.4.4.3:

The Contractor must make allowance for the penetration of the subbase gravel material into the sub-grade layer. The layer thickness specified shall be a net homogeneous layer. Only the homogeneous layer will be measured for payment purposes.
The material shall be a crushed stone complying with SABS 1083 type G2. It is the Contractor’s responsibility to provide basecourse which is within the specified limits.

Basecourse not conforming to these specifications shall be rejected and the Contractor will have no claims for additional payments or delays due thereto for any reason whatsoever. The rate tendered shall include transport charges.

PSMF 5.4.4.2 Compaction
The base shall be compacted to 98% Mod AASHTO.

PSMF 6.1.4 Tolerance
The tolerance on the thickness of basecourse is hereby amended to read as follows:

"In no place shall the actual thickness of the base be less than the thickness specified on the typical cross section".

Furthermore the base shall be constructed to lines and levels so as to ensure that water draining from the road can enter the kerb channel without ponding.

PSMH ASPHALT BASE AND SURFACING

PSMH 1 Scope
SABS medium continuously graded asphalt premix shall be required where specified.

PSMH 3.1 (b) Prime Coat
The prime coat shall be MC-30 cut-back bitumen. The tender is based on a spray rate of 0.70 litres /m².

PSMH 3.4.2 Surfacing
Notwithstanding the requirements of Sub-Clause 3.4.2, the binder used shall be a penetration grade bitumen of between 80 and 100 penetration.

PSMH 3.5.6 Grading
The grading of asphalt shall be medium continuously graded asphalt, as per Table 2 and Column 6.

PSMH 5.1.1 Preparation of Surface
A prime coat shall be applied to the surface of the base at the rate of 0.70 l/m². Where the primed surface has become contaminated or aged such that a satisfactory bond will not be achieved with asphalt, a tack coat shall be applied. No additional payment will be made for such tack coat.

PSMH 5.5.1 Design of Asphalt
The surfacing shall be 40mm continuously graded hot mix using 80/100 penetration grade bituminous binder.
The measurement of the asphalt surfacing shall be per square metre.

**Marshall Criteria**

PSMH 5.5.2

The air voids shall be between 3% and 6% at a nominal bitumen content of 5.0%.

**SEGMENTED PAVING**

PSMJ 2.3

Paving bricks shall be 80mm SABS approved 35MPa concrete interlockers, laid in the patterns specified by the engineer and the landscape architect.

**Block**

PSMJ 2.3 (b)

The term block shall also include baked clay brick pavers, precast concrete pavers and slabs, exposed aggregate pavers and slabs and precast concrete cobbles.

**Strength**

PSMJ 3.1.2

All blocks shall be a minimum of class 35 and tested in accordance with SABS 1058.

**Jointing**

PSMJ 3.3 (b)

Jointing of blocks to be done with clean jointing sand. Jointing may include 3% cement stabilization, as directed by the engineer.

**Laying Of Units**

PSMJ 5.4

The required pattern may require units of different colours, textures or shapes to be laid in adjoining sections and is to be included in the rates. Units shall be cut and not split where these are required to fit special size units

**Construction of Paving**

PSMJ 8.2.2

The cost for constructing the pattern required is to be included in the rate for each type of unit. The provision of mitred corners and cuttings and the provision of polysulphide sealed joints are also to be included in the rate for each type of unit. Concrete bedding and haunching to units must be allowed for in the rates for each unit type used as an edging.

In addition to clause 8.2.2, the rate tendered for construction of paving shall include for cutting to fit edge restraints (clause 8.2.3) and locking-up of paving by rolling as per clause 5.6.2.

**KERBING AND CHANNELLING**

**Workmanship**

PSMK 5.13

Kerbing that is not properly protected during surfacing operations shall be cleaned off by a method approved of by the Engineer. Kerbs that cannot be cleaned shall be removed and replaced at the Contractor’s expense.

**Transitions**
8.2.6 Notwithstanding provisions of clause 8.2.6 transitions shall be measured per linear metre as kerbing. The rated tendered for kerbing shall also include for transitions.

PSMM ANCILLARY ROADWORKS

PSMM General

3.2.1 Road traffic signs shall be purchased from an approved manufacturer and shall be fabricated in accordance with the South African Road Traffic Signs Manual and as specified below.

PSMM Reflective Material

3.2.9 Add the following to clause 3.2.9:

Non reflective material shall conform to the respective quality requirements, apart from the reflective quality requirements, of CKS 191.

PSMM Supports

5.2.1.1 Posts shall be fabricated 75mm outside dia 3mm steel tubing to SABS 657.

The posts shall be straight with a smooth finished surface free of rust, scale, grease or foreign matter.

Posts shall be suitably drilled to permit the sign plates or frames being firmly fixed to the posts by at least two (2) M12 galvanized steel bolts, complete with fibre washers.

The open ends of all posts shall be closed either by the use of standard fittings or by welding on a mild steel plate.

After the posts have been drilled, all welding completed, and all sharp edges rounded off and smoothed down they shall be zinc coated using the ‘hot-dip’ process in accordance with SABS Specification 763 ‘Hot-dip’ (Galvanized) Zinc coating.

Should any modifications be made to posts after galvanizing, the posts shall be completely re-galvanized as described above.

PSMM Backing Plates and Boards

5.2.2.2 All traffic signs shall be constructed of 1.4mm chromadek plate to manufacturer’s specification.

PSMM Installation of Road Signs

5.2.4 Steelwork which is to be cast or grouted into concrete shall be cleaned of loose rust, scale, oil or any other material which may in the opinion of the Engineer impair the bond between the concrete and steel.

The posts for road traffic signs shall be placed in holes of not less than 0.9 metres in depth and shall be embedded in well compacted Class 10 concrete to the full depth of the hole and a minimum of 400mm x 400mm.
The top level of concrete shall be 75mm below ground level. Traffic signs shall be securely and firmly fixed to the posts by means of M12 bolts.

Road traffic signs erected in place shall be true to the required dimensions, free from buckles or dents shall be vertical in the required position and shall have a neat workmanlike appearance.

**SD**

**SUBSOIL DRAINAGE**

**SD 1 Scope**

This section deals with the laying, jointing and installation of subsoil drainage pipes and the construction of subsoil drains formed by enclosing stone, sand or pipes with filter fabrics. Reference should be made to the relevant sections of SABS 1200 for details of trench excavation, and the construction of manholes, junction boxes, etc.

**SD 2 Materials**

**SD 2.1 uPVC Pipes**

All uPVC pipes shall be class 34 pipes and fittings manufactured in accordance with SABS 791.

**SD 2.2 Pitch Fibre Pipes**

Pitch fibre pipes not be used.

**SD 2.3 Filter Fabrics**

Filter fabrics shall be of the highest quality and shall be supplied from an approved manufacturer. They shall be manufactured from polyester or polypropylene by means of a spun-bonded, non-woven process unless otherwise specified.

**SD 2.4 Sand Filter Material**

Sand filter material shall be natural pit sand or a blend of natural pit sand and crushed stone fines and shall comply in quality with SABS 1083.

Filter sand shall be clean, angular and free from dirt, clay or other extraneous organic or saline material. The Engineer may, if he considers it necessary, require any material which does not conform to the specification to be washed at the expense of the Contractor.

Unless otherwise specified, the sand filter material shall be an evenly graded material with 12 – 18% (by mass) passing the 0.30mm metric sieve and 12 – 18% being retained on the 2.36mm metric sieve.

**SD 2.5 Graded Stone Filter Material**

Graded stone filter material shall comprise clean, hard, sound and angular particles of an approved crushed stone conforming in quality to the requirements of the SABS 1083.

Unless otherwise specified, the stone filter shall be an evenly graded material with 12 – 18% (by mass) passing a 4.75mm metric sieve and approximately 12 – 18% being retained on the 19.0mm metric sieve.

**SD 2.6 Uniform Size Stone Filter Material**
Uniformly sized stone filter material shall only be used where a filter fabric separates the stone filter from the surrounding natural soil.

The material shall consist of clean, hard, sound and angular particles of an approved

C3.6.3 STRUCTURAL

a) Drawings

b) General

- This project specification, together with the relevant structural engineering drawings, should be issued to all relevant sub-contractors by the main contractor.

- All dimensions and levels to be checked on site and correlated with architect's drawings and details before construction commences and any discrepancies are to be reported immediately to the architect and engineer.

- All waterproofing details are to be in accordance with the architect's (or his appointed specialist) specifications and instructions. The structural engineer is not responsible for any waterproofing or waterproofing details whatsoever unless specifically appointed to do so.

- All details and dimensions shown on structural drawings are subject to confirmation on site and during construction.

- All construction methods and materials used are to be in accordance with the requirements of SANS 10400 and SANS 01200 and all other applicable SABS codes of practice available from the SABS at contact no 021 689 5511. A non-inclusive list follows:

(i) SANS 1200 A (1986): General
(ii) SANS 1200 AA (1986): Small works
(iii) SANS 1200 D (1986): Earthworks
(iv) SANS 1200 G (1982): Concrete (structural)
(v) SANS 1200 GB (1984): Concrete (ordinary buildings)
(vi) SANS 1200 H (1990): Structural steelwork

Should the contractor's appointment be based on the newer SANS 2001, the SANS 1200 references should be replaced with SANS 2001:

(i) SANS 2001-BE1:2008 Earthworks (general)
(ii) SANS 2001-BS1:2008 Site Clearance
(iii) SANS 2001-CC1:2012 Concrete works (structural)
(iv) SANS 2001-CC2:2007 Concrete works (minor works)
(v) SANS 2001-CM1:2012 Masonry walling
(vi) SANS 2001-CM2:2011 Strip footings, pad footings & slab-on-the-ground foundations for masonry walling
Part C3: Scope of work

(vii) SANS 2001-CS1:2012 Structural steelwork
(viii) SANS 2001-CT1:2011 Structural timberwork (flooring)
(ix) SANS 2001-CT2:2011 Structural timberwork (roofing)
(x) SANS 2001-DP1:2011 Earthworks for buried pipelines and prefabricated culverts
(xi) SANS 2001-DP2:2010 Medium pressure pipelines
(xii) SANS 2001-DP4:2010 Sewers
(xiii) SANS 2001-DP5:2010 Stormwater drainage
(xiv) SANS 2001-DP6:2012 Below-ground water installations
(xv) SANS 2001-DP8:2011 Pipe jacking
(xvi) SANS 2001-EM1:2007 Cement plaster

- It is the contractor's responsibility to ensure that he and/or his appointed sub-contractors understand and comply with all relevant engineering drawings and specifications and that he and/or his sub-contractors are adequately experienced to undertake all aspects of the work safely and correctly according to the relevant codes of practice.

- All details and dimensions pertaining to any existing structures are to be confirmed on site by the contractor and the engineer is to be immediately informed of any unexpected aspects pertaining to them. Where trying into existing structures or services, the contractor should ensure that the level datums are exactly the same.

- A benchmark, gridlines and site boundaries are to be set out on site by a qualified and professionally registered land surveyor who has adequate professional indemnity cover.

- All proprietary products specified for use are to be used strictly according to manufacturer's instructions and specifications at all times. If an alternative product is proposed, the contractor shall submit the proposal to the engineer for approval. Relevant product specifications and/or data sheets may be called for if required by the engineer.

- The contractor is at all times to be fully responsible for quality control on site ensuring strict compliance with all drawings, details and specifications issued for construction by the professional team. This quality compliance extends to the contractor's sub-contractors. The onus is on the contractor to carry our representative sampling to ensure compliance to specifications. In the absence of a specification/s, the contractor should request such information from the engineer.

- The contractor is to comply at all times with all relevant municipal regulations and bylaws in the area of the site and is to ensure that he has a set of approved building plans on site at all times.

- Should the engineer be required on site to undertake inspections or ad hoc meeting, preferably at least 24 hours' notice is requested.

- The contractor shall ensure that the temporary storage of materials and or rubble created on site does not exceed the design loads of the various elements effected. The onus is on the contractor to request the design loads.

c) EXCAVATIONS AND FOUNDATIONS

- The contractor is to refer to the site specific Geotechnical report to understand the soil conditions and water table of the site and its surrounds. During construction the contractor is responsible for ensuring that all
excavations are kept free of water at all times. The onus is on the contractor to plan and provide the necessary temporary dewatering.

- Should the contractor request the use of the **permanent dewatering** drainage system during construction, the system is to be protected against all contamination and prior to handover the system should be comprehensively flushed.

- The contractor is to identify and expose all **existing underground services** on site and prevent any damage to these services.

- To ensure that the foundation level achieves the desired **bearing pressures**, all excavations (where not piled) are to be checked and approved by the engineer before any concrete is cast. This approval will be delegated from the structural engineer to the specialist geotechnical engineer in many cases. The contractor should notify the engineer or delegated geotechnical engineer at least 48 hours prior to requiring an inspection. Foundation excavations to be below any signs of organic material, roots, rubble, fill etc.

- All final foundation sizes, depths and details are **subject to confirmation** on site by engineer (see 1.4 above).

- **Assumed safe bearing capacity** of soil under foundations – 150kpa

- As soon as possible after the excavation has taken place (and approval of the foundation material has been given by the geotechnical engineer) a 50mm **blinding layer** consisting of 10MPa mass concrete should be placed at the approved founding level. Excavations should not be left open for longer than absolutely necessary.

- All foundations to be built on **firm in-situ material** (not on fill). In the case of any over-excavation, the difference in founding level should be made up with 10 MPa concrete unless otherwise instructed by the engineer.

- The sides of all excavations and bulk cuts are to have **safe batters** as recommended in the Geotechnical report. In the absence of any data, a slope of 1v:1.5H should be assumed. In the event of excavations needing to be cut steeper than recommended or in the event of water ingress into the excavations causing collapse of the sides, **shoring** is to be provided (see also note 1.1 above). The contractor shall take whatever measure he deems necessary to protect all finished work once installed and any damage caused by the contractor or his subcontractor shall be made good at his own expense.

- The contractor is responsible for providing the **design and construction** of the necessary shoring to all temporary excavations referred to above.

- The contractor shall erect the necessary **hoarding** to ensure all deep excavations are safe at all times. The site is to be secured and access controlled to prevent the entry of unauthorised persons during and after working hours.

- **Backfill** is to be undertaken in layers ensuring that replacement material matches the adjoining in-situ or engineered layers (whichever applicable) to prevent differential settlement. Testing of the backfill material will be necessary (described elsewhere).

- The top **level of all foundations** to be at least 300mm below final outside ground level or finished floor level, whichever is the lower, unless specifically noted otherwise on the structural drawings.
• Foundations and brickwork construction of **single storey buildings** to be in accordance with SAICE/instructed code of practice for foundations and super structures of single storey residential buildings of masonry construction as per NHBRC recommendations.

• All rising **foundation brickwork** to be constructed using an NFX brick and have continuous brickforce every 2nd course and cavity to be filled to underside of stepped DPC with 13mm aggregate, 15mpa concrete, taking care not to allow any honeycombing. Refer to the section on Brickwork in these specifications for further information pertaining to brickwork.

d) **FORMWORK/TEMPORARY SUPPORT WORK**

• Forms shall have **sufficient strength** to withstand the pressure resulting from placement and compaction of the concrete and shall have sufficient rigidity to maintain the specified tolerances, the required shapes, finishes, positions, levels and dimensions shown in the drawings. The surfaces of forms which are to be in contact with the concrete shall be clean, free from deposits or adhering matter, ridges or spatter that will cause irregularities and blemishes to the concrete surface and shall also be free from indentations and warps.

• **Surfaces** that are to be in contact with fresh (wet) concrete shall be clean and covered with a suitable coating material that will effectively prevent absorption of moisture, will prevent bond with the concrete and will not stain the concrete surfaces.

• **Release agents** shall be applied strictly in accordance with the manufacturer's instructions and every precaution shall be taken to avoid the contamination of the reinforcement, prestressing tendons and anchorages. In the selection of release agents, due regard shall be given to the necessity for maintaining a uniform colour and appearance throughout on the exposed concrete surfaces.

• It is the **contractor's responsibility** to ensure the adequacy of temporary support work (formwork) at all times. This responsibility to include, lateral bracing, warning signs and public protection measures. The contractor should ensure that all formwork is signed off by the formwork supplier and his own competent person prior to casting concrete.

• **Soleplates** shall be provided when staging off material which is not suitable to support the applied loads. The contractor should ensure that the spacing of formwork legs and the size of the soleplates is such that settlement does not occur when loaded. The contractor (or his appointed sub-contractor) should obtain allowable bearing pressures from the geotechnical engineer in order to carry out the soleplate design.

• Support work to **remain in place** until the new structures is capable of providing its own support. Careful consideration is to be given to material curing times, sequencing, construction loads etc. When in doubt consult with the structural engineer. See also notes on back propping.

e) **CONCRETE**

• Concrete **characteristic 28 day strength** (it not stated otherwise on the drawings):

<table>
<thead>
<tr>
<th>Type</th>
<th>Strength (MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blinding</td>
<td>15</td>
</tr>
<tr>
<td>Unreinforced footings</td>
<td>15</td>
</tr>
<tr>
<td>Reinforced footings</td>
<td>25</td>
</tr>
<tr>
<td>RC slabs, beams, stairs &amp; landings</td>
<td>25</td>
</tr>
<tr>
<td>Surface bed</td>
<td>35</td>
</tr>
</tbody>
</table>
Columns 30 MPa

- All **concrete mix designs** are subject to approval by the structural engineer. Cement to comply with SANS 50197. The choice of Cements and extenders should be carefully considered for any given application. Weather conditions, timing of saw-cuts, post-tensioning stressing times etc are a few such examples.

- Nominal **aggregate** size – 19mm, unless otherwise stated or approved.

- All concrete structures cast below the water table to have a water cement ratio in the region of 0.5. The final mix design shall be submitted to the engineer for approval but an allowable 60% (total) slag content may be assumed for tender.

- **Concrete cube tests** to be carried out on all pours as per relevant SANS 01200 or SANS 2001 code (whichever applicable) requirements with specific reference to sampling frequency. The onus is on the contractor to closely monitor these results and report any strength shortfalls to the engineer immediately.

- All **precast concrete** suspended slabs to be in accordance with the requirements of SANS 1879 (2004): “precast concrete suspended slabs”.

- All performance tests for precast concrete floors should be in accordance with the requirements of SANS is 09882 (1993): “Performance standards in building – performance test for precast concrete floors – behaviour under non-concentrated load”

- **Curing and protection**: After formwork has been removed and as soon as it is practicable, all concrete shall, subject to the provisions of the relevant SANS1200 or SANS 2001, be protected from contamination, damage, loss of moisture, excessively high or low temps etc by one or more of the following methods:

  - Columns: **Wrap** in plastic sheeting immediately upon removal of formwork. The plastic wrap should be airtight. An approved **curing compound** is also acceptable.

  - Beams: Spray with **curing compound** immediately upon removal of side shuttering, alternatively leave **shuttering** in place for 7 days.

  - Slabs: Immediately after casting the concrete, it shall be protected from loss of moisture by one or more of the following methods (for a minimum duration as per SANS 10100-2:2014 Table 4):

    a) Covering the surface with **plastic sheeting** (preferable for hot and windy conditions)
    b) **Ponding** the exposed surfaces with water.
    c) Continuously **spraying** the exposed surfaces with water
    d) The use of an approved **curing compound** and in accordance with the manufacturer’s instruction.

  - Walls: Spray with **curing compound** or, alternatively, leave the **shutters** in place for 7 days.

  **Note:** When using a **curing compound** for curing concrete the final surface finish is to be taken into account when choosing the specific product (consult with architect). Certain curing compounds affect the adhesion of certain products (like painted parking lines on a wax based curing compound for example).

- **Recommended earliest stripping time of formwork** is dependent on ambient temperatures, cement type and curing requirements. Actual times are to be discussed and agreed with the engineer. An initial guideline for planning purposes is as follows:
## Part C3: Scope of work

### Particular (Project) Specification

<table>
<thead>
<tr>
<th>Type of structural member or formwork</th>
<th>Duration or min concrete strength requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Beam sides and column sides</td>
<td>3 days</td>
</tr>
<tr>
<td>b) Wall shutters</td>
<td>3 – 7 days</td>
</tr>
<tr>
<td>c) Slabs soffits with props left underneath</td>
<td>4-7 days</td>
</tr>
<tr>
<td>d) Beam soffits and rib formers of a ribbed floor construction (both with props left underneath)</td>
<td>7-14 days</td>
</tr>
<tr>
<td><strong>Stripping of props (single level suspended slabs where there are no back-propping requirements)</strong></td>
<td></td>
</tr>
<tr>
<td>e) Post tensioned flat slabs</td>
<td>Min 30 Mpa</td>
</tr>
<tr>
<td>f) Slab props including beam props</td>
<td>Min 25MPa</td>
</tr>
<tr>
<td>g) Cantilevers</td>
<td>Min 25MPa (but min 14 days)</td>
</tr>
</tbody>
</table>

For **multi-storey buildings back propping** is to be agreed with engineer in detail and no stripping is allowed before permission or a specific method statement is obtained from the engineer.

The **extent** of back-propping required is again dependent on the curing that has been achieved on the support slabs below the slab being cast. For initial guideline purposes, allow the following for suspended slabs:

- Slab being cast is fully shuttered propped
- 1st supporting slab to be 75% back-propped
- 2nd supporting slab to be 50% back-propped
- 3rd supporting slab to be 25% back-propped

The main contractor and formwork sub-contractor should note that **propping on the lower 2 support floors needs to be destressed** (timing as per table 3.9) so as not to transfer the full weight of the slab being cast onto the lowest supporting floors. If this is unclear the engineer should be consulted.

**Back-propping of transfer beams** should be discussed in detail with the engineer. In the absence of any detailed information, allow for the back-propping to extend down to the ground level.

- No **brickwork** may be constructed on a suspended slab which is **still propped**.
- No core-drilling, breaking of concrete, recesses or chases, other than those shown on the drawings or approved by the engineer, may be cut or otherwise formed in the concrete without the permission of the engineer.

- **Fixtures**, hangars etc requiring fixing into or onto reinforced concrete is subject to approval by the engineer. This includes all mechanical, electrical, wet services, data and other services fixtures to slab soffits and columns.

- Subject to architectural approval, all exposed corners for columns and walls in the basements to receive 30mm chamfers and all columns in brickwork walls to have no chamfers.

- Concrete/cement seepage through shutters (burrs), spillage, overcast, highpoints etc are to be rubbed down and/or repaired to have a similar colour variation and texture finish to the adjacent concrete elements.

- Permissible concrete deviations and tolerances are set out in the relevant SANS 01200 or SANS 2001 code (whichever applicable). The specific class and degree of accuracy shall be as per the bill of quantities and/or as per the specific technical documentation issued. When in doubt or if any discrepancies are found, the contractor should obtain an instruction on before executing the works.

- The positioning of cast joints, where required in suspended slabs and beams, is to be discussed in detail with the engineer. Typically cast joints should be cast at an angle of 30 degrees to the vertical such that the portion of slab or beam closest to the column will support the adjoining slab/beam. This angled cast joint shutter should be formed using a solid shutter (not chicken mesh) to ensure that accelerated water loss (rapid curing and hence weakening) does not occur at this edge. Care should be taken to ensure that a neat straight cast line is achieved. The shutter may be removed no sooner than 3 days after pouring unless the adjoining slab is intended to be cast within 4 hours of said removal. The surface of the concrete shall be roughened (removing all laitance) using a wire brush. **Vertical and horizontal cast joints in columns and retaining walls** shall be free of contaminants and be scabbled and cleaned to ensure a 100% contact between concrete pours is achieved.

- The contractor shall take all reasonable steps to ensure that concrete is not poured during periods of heavy or prolonged rainfall without taking the necessary steps to protect such concrete against surface damage or water ingress. Additional water entering the mix can significantly weaken the concrete strength and affect durability and surface abrasion resistance.

- Concrete should be placed within 1hr from time of discharge from mixer, placed in horizontal layers (where practical) not exceeding 450mm to avoid heaping. The concrete shall not freefall through a height of more than 3m.

### f) REINFORCEMENT

- Reinforcement shall **comply with** the relevant requirements of SANS 282, SANS 920, SANS 10144 and SANS 1024. See also the relevant section of SANS 10100-1 and SANS 10100-2

- All placed reinforcement to be **checked and approved** by the engineer before casting concrete.

- The grade of accuracy for the cover over reinforcement shall comply with the requirements of the relevant SANS 2001-CC1 or SANS 1200. Reinforcement shall not be subjected to mechanical damage, rough handling, dropping from a height or shock loading.

- The engineer is to be given a minimum of 24 hours **notice** before reinforcement inspections and the work needs to 100% complete when he arrives for the inspection.

- Minimum concrete cover to reinforcement (unless specified differently in bending schedules or drawings):
Foundations (pilecaps) 75mm (see bending schedule)
Foundations (bases) 50mm (see bending schedule)
Beams (internal) 30mm
Beams (external) 40mm
Columns 30mm
Slab soffits and tops (internal) 30mm
Slab soffits (external) 40mm
Slab edge 40mm

- The contractor must take particular care to ensure that the specified concrete cover to all reinforcement has been attained throughout and all rebar is securely and neatly fixed before the engineer is called to undertake rebar inspections.

- Bending schedules and fixing details for reinforcement will be issued at construction stage. For initial high level estimation and planning purposes, the following **reinforcing allowances** may be assumed:

<table>
<thead>
<tr>
<th>Type</th>
<th>Allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bases</td>
<td>70kg/m³</td>
</tr>
<tr>
<td>Columns</td>
<td>125kg/m³</td>
</tr>
<tr>
<td>Suspended slabs</td>
<td>105kg/m³</td>
</tr>
</tbody>
</table>

- All concrete is to be mechanically **vibrated and compacted**.

- It is the contractor's responsibility to ensure that all reinforcement and cover blocks are correctly and accurately fixed, and **remain in place** during pouring.

- The engineer will **not** be responsible for any concrete cast where he was not notified to carry out a rebar inspection visit.

g) **BRICKWORK, MORTAR AND PLASTER**

- All brickwork and plaster is to be constructed in accordance with the requirements of:

  (i) SANS 2001-CM1 - 2012  Construction works Part CM1: Masonry walling
  (i) SANS 0164 Part 1 & 2 - 1980 The structural use of masonry – Unreinforced masonry walling
  (ii) SANS 10249 - 2012 Masonry walling
  (iii) SANS 28 - 2010 Metal ties for cavity walls
  (iv) SANS 10164 - 2012 Masonry walling
  (v) NHBRC - 2015 Home Building Manual
  (vi) SANS 10400
  (vii) The Concrete Institute Relevant applicable leaflets

- **Masonry units** shall satisfy the minimum specified compressive strength requirements and **comply with** the relevant requirements of one of the following standards

  - SANS 227 for burnt clay masonry units,
  - SANS 1215 for concrete masonry units.

- Masonry Units – general **strength guideline**:
Part C3: Scope of work

- Single storey construction (internal walling) - 3.5MPa
- External brickwork and double storey construction - 7MPa
- Structural and foundation brickwork - 14MPa (NFX in foundation if clay)

Masonry units shall

- have an average and minimum individual compressive strength as specified when five units are tested in accordance with the compressive strength requirements of SANS 1215;
- have dimensions such that the units can be built into walls within the joint tolerances, bond patterns and corner construction as set out in 4.4 of SANS 2001-CM1 - 2012
- not exhibit any surface pop-outs, should units contain slag, clinker or burnt clay aggregate;
- be of such a quality that, when delivered to the point of use, they are intact and have no corner chips of horizontal and vertical dimensions that exceed 15 mm;
- have, in the case of hollow units, face shells and webs not less than 25 mm thick, or one-sixth of the width of the unit, whichever is the greater;
- in the case of calcium silicate units, either have a demonstrated drying shrinkage of not more than 0.045 % or not be built into walls within 10 d of the date of manufacture;
- in the case of concrete masonry units, either have a demonstrated drying shrinkage of not more than 0.06 % or not be built into walls within 21 d of the date of manufacture; and
- have, in the case of burnt clay units, an irreversible moisture expansion of not more than 0.20 % and, in face masonry applications, be durable in the environment in which they will be constructed as evidenced by past performance over not less than 5 years or as reasonably demonstrated by other means.
- Masonry cements shall comply with the requirements of SANS 50413-1.

Wetting of masonry units

- Burnt clay units that have an initial rate of absorption that exceeds 1.8 g/m2/min shall be wetted 24 h before laying. Units shall be surface dry when laid. Immersion of the units in water shall not be permitted. (See SANS 2001 for testing guidance)
- Concrete and calcium silicate units shall not be wetted before laying and shall be laid dry. Stacks shall be protected from the rain.

The rate of new construction shall be limited so as to eliminate any possibility of joint deformation, slumping or instability, which might reduce the bond strength. As a guideline the height of walling built in a day should generally not exceed 1.3 m to 1.5 m.

Unless otherwise specified, assume a class i mortar strength for all structural brickwork and a class ii mortar for non-structural brickwork. Mortar shall comply with SANS 2001 – CM1: 2012. No plasticisers are allowed without the approval of the engineer. Where permission has been granted, plasticizers shall comply with the requirements of EN 934-3.

Mortar strengths:

- Class i = 10MPa (14.5 MPa preliminary laboratory test)
- Class ii = 5MPa (7 MPa preliminary laboratory test)
- Class iii = 1.5MPa (2 MPa preliminary laboratory test)

Wall ties shall be according to SANS 28:2010 and placed in accordance with the NHBRC, SANS 10400 and SANS 10249:2012 requirements. Contractor to ensure all non-metallic wall ties are to be SANS 2001-CM1 certified in accordance with 4.1.12.2.
A general guideline is shown below: Note that additional ties shall be provided in cavity walls at vertical centres that do not exceed 300 mm centres within 150 mm of the edges of all openings and movement or control joints (or both) and where a leaf intersects with another wall. Ties shall be laid in the mortar as the work proceeds and shall have a length of embedment in the mortar of not less than 50 mm. Ties shall be set level or with a slight slope to the outside leaf of the masonry.

### Spacing of wall ties

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal thickness of leaf mm</td>
<td>Cavity width mm</td>
<td>Min of ties per square meter of face</td>
<td>Maximum tie spacing mm</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>50-75</td>
<td>5</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>90 or more</td>
<td>50-75</td>
<td>2.5</td>
<td>900</td>
<td>450</td>
</tr>
<tr>
<td>90 or more</td>
<td>75-150</td>
<td>3°</td>
<td>600</td>
<td>450</td>
</tr>
</tbody>
</table>

Note 3° - ensure the strip ties are the vertical twist type as below or any other similar type having at the same strength and stiffness

- Two continuous layers of brickforce are to be laid in the first two courses below a supported floor slab soffit and at the eaves wall plate level.
- All brickforce to have at least 300mm overlap at all joints.
- All internal non-load bearing brickwork to stop 20mm below soffit of slabs and sealed in accordance with the architectural, fire and acoustic engineering specifications.
- All brickwork is to be connected to reinforced concrete columns by means of galvanised hoop-iron straps (min 30x1.2mm thick) shot-fired into concrete through 10mm jointex at a minimum of every 4th course. Hoop-iron is to be built a minimum of 400mm into brickwork.
- No brickwork may be constructed on a suspended slab which is still propped.
- Precast lintel support (bearing) widths as per manufacturer’s recommendation. As a guideline the following may be assumed initially:
  - 150mm – up to 1.5m opening (span)
  - 250mm – up to 2.5m opening
  - 350mm – greater than 2.5m
  - For lintels spanning more than 3m the engineer is to provide specific details.
• Where lintels butt up against an RC column assume, for costing, a 100x100x10mm galvanised angle support bolted into RC column.

• Lintels to have a minimum of 4 courses of **brickwork above lintel** for openings of up to a 2m span with continuous brickforce in the lower 2 courses (extending 500mm either side of opening). For openings exceeding 2m the engineer will need to specify the minimum courses required. All lintels to remain **propped** for a minimum of 7 days after brickwork has been built.

• **Chasing (internal walls):**
  
  • **Vertical chases** in solid units - depth not to exceed the lesser of one third of the wall/leaf thickness or 30mm. For hollow core units the depth may not exceed 15mm. Widths of chases not to exceed 70mm. Clear distance between chases should not be less than 225mm. Back to back chases need to be spaced at 225mm min as well.
  
  • **Horizontal chases** should not exceed one sixth of the wall/leaf thickness and not exceed 1250mm in length.
  
  • Holes and chases should not be made by impact methods in order to avoid cracking of brickwork and plaster.
  
  • All chasing to be filled solidly with mortar once conduits are in place.
  
  • Chasing of brickwork above openings which exceed 1m in span should be discussed with the engineer.

**Chasing (external walls):** No chasing of any external walls is permitted without the permission of the structural engineer.

• **Brickwork movement joints** will be detailed by the engineer and/or architect at construction stage. For planning and estimation purposes allow the following:
  
  • Clay brick walls joints at 7m spacing
  • Cement brick wall at 5m spacing
  • Control joints shall be at least 10 mm wide and if filled shall be filled with a compressible material such as jointex. (Soft board is not a compressible material and is unsuitable joint filler material). Typically external joints shall be sealed against the filler or a backing strip in accordance with the requirements of below.
  • Joints around door and window frames, control joints, articulation joints, abutting joints at external columns and other points where **sealing** is indicated or required shall be primed, if necessary, and filled in accordance with the manufacturer's recommendations with an appropriate sealant of a colour specified in the scope of work, if any.

• Sealing compounds for the building & construction industry to be in accordance with the requirements of: SANS 11077-1984 and comprise of a polyurethane-base such as Sika-pro 2hp universal one component polyurethane joint sealant or similar approved.

• **Plaster Cements** for plaster should comply with the requirements of SANS 50197-1 or SANS 50413-1. CEM I and CEM II A cements are used in plaster with good results. CEM II B-V or W cements are recommended for plaster exposed to damp conditions during service (eg. plastered plinths below damp proof course level and freestanding walls) to reduce the risk of efflorescence. Masonry cements may be used in accordance with the
requirements in SANS 2001-EM1 and/or the NHBRC Home Buiding Manual, whichever is applicable to the work. Note that the NHBRC Home Building Manual does not permit the use of MC 22,5X or MC 12,5X in plaster work for residential construction unless a competent person has designed the mix; this also applies to common cements for which deemed-to-satisfy mixes are not given.

Table 2: Prescribed mix proportions for plaster (adapted from SANS 2001-EMI:2007)

<table>
<thead>
<tr>
<th>Type</th>
<th>Common cement kg</th>
<th>Lime kg</th>
<th>Masonry cement MC 22,5X or MC 12,5X, kg</th>
<th>Masonry cement MC 12,5 kg</th>
<th>Sand, loose damp volume, l</th>
<th>Sand, standard wheelbarrows</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Plaster</td>
<td>50</td>
<td>0–25</td>
<td>-</td>
<td>-</td>
<td>150</td>
<td>2,5</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>-</td>
<td>130</td>
<td>2</td>
</tr>
<tr>
<td>Internal Plaster</td>
<td>50</td>
<td>0–25</td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>-</td>
<td>150</td>
<td>2,5</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>100</td>
<td>1,5</td>
</tr>
</tbody>
</table>

Note that the NHBRC Home Building Manual does not permit the use of MC 22,5X or MC 12,5X in plaster work for residential construction, unless a competent person has designed the mix.

Table 3: Mix proportions for plaster for soft burnt clay brickwork and other weak substrates

<table>
<thead>
<tr>
<th>Description</th>
<th>Using common cement</th>
<th>Using masonry cement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cement kg</td>
<td>Hydrated builder's lime kg</td>
</tr>
<tr>
<td>Mix C</td>
<td>Plaster applied to a very weak substrate, e.g. poorly burnt clay brick</td>
<td>50</td>
</tr>
</tbody>
</table>

1. Complying with SANS 50197-1 strength classes 32,5 and 42,5 only.
2. A 25 kg bag of lime has a nominal volume of 40 litres.
3. Complying with SANS 50413-1: strength class 22,5X.
4. Not suitable for mud-brick walls or adobe construction.

- Refer to SANS 1090:2009 grading requirements for plaster sand.
- Plaster additives are to be approved by the engineer.
- Plaster Batching - Batching sand by loose volume is satisfactory. Batches based on whole bags of cement are preferable. The size of the batch should, however, be small enough for it to be used up within about two hours.

Plaster Mixing - This may be done by machine or by hand. Machine mixing is preferable and highly recommended. Hand mixing should be done on a smooth concrete floor or steel sheet. First spread out the sand about 100 mm thick. Spread the cement uniformly over the sand. Mix sand and cement until the colour is uniform. Then gradually add water while mixing until the right consistence is reached. 6.3 Plaster thickness Recommended thicknesses are: First undercoat: 10-15 mm Second undercoat: (if any): 5-10 mm Finish coat: 5-10 mm If plaster is applied in a single coat, thickness should be 10-15 mm. A single coat should not be thicker than 15 mm.

- Plastering Accuracy - SANS 2001-EMI:2007 states that "Where required in terms of the specification data, the permissible deviations in plaster shall not exceed 6 mm under a 2 m straight edge." 6.5 Accuracy SANS 2001-
EMI:2007 states that “Where required in terms of the specification data, the permissible deviations in plaster shall not exceed 6 mm under a 2 m straight edge.”

h) SURFACE BEDS AND SCREEDS

- All surface beds and sub-surface (layerworks) preparation are to be in accordance with the details provided on the engineering drawings. The surface finish and level tolerances are specified elsewhere.

- The contractor shall provide results of compaction testing of the earthworks layers for approval before casting surface beds. For initial estimate purposes where no information has been supplied, assume 150mm G5 layer or 300mm of approved granular fill compacted to 98% mod aashto.

- For high level initial estimation purposes assume a 350 micron DPC below surface beds turned up to the full depth of surface bed as bond breaker against all brickwork on all sides. Jointex to be provided around all internal columns. Assume 5% of surface beds to be reinforced with mesh 245. Assume top of surface bed level to be a minimum of 150mm above the final outside levels as per SANS 10400.

- All surface bed mix designs must be approved by the engineer. The mix design should be developed between the contractor and concrete supplier to ensure that all the design strength criteria are met whilst considering the curing and timing of saw-cutting.

- Saw-cut joints will be required in all surface beds. For planning and costing purposes allow for joints to be provided at 4m centres. The aspect ratio of the panel sizes should be no more than 1:1.25. The timing of saw-cutting, which is a function of mix design and weather conditions, is left solely in the hands of the main contractor. No cracked surface bed panels will be accepted.

- The concrete on which the screed is to be laid should have a characteristic strength of at least 20 MPa and be free of random cracking, dust, oil or other contamination. The day before laying of the screed, the base concrete should be tested for absorptiveness by pouring a cupful of water onto the surface. If during the next few minutes it is clear that water is being absorbed the suction of the concrete should be regarded as being high. In that case the procedure is:

a) Wet the area on which the new screed or topping is to be laid and keep it wet for four hours or more.

b) Remove all free water on the surface.

c) Allow the surface to become visibly dry so that the base achieves a saturated surface-dry condition.

d) Apply the screed to the surface. On the other hand, if the test water is not visibly absorbed by the concrete during the first few minutes after application, the suction of the concrete should be regarded as being low and the screed may be applied to the dry concrete.

Concrete with 28-day characteristic strengths of 25 MPa and over, if properly compacted and cured, can be regarded as non-absorptive.

- Screed thickness, surface finish and allowable deviations from datum level are according to the architect’s specifications. Generally screeds should be about 25 mm thick but not less than 15 mm or more than 50 mm. Joints should also be provided over joints in the slab/surface bed below.

- Joints in screed are to extend at least halfway through the thickness of the topping and should coincide with the joints in the concrete surface below.
• Screeds should be **laid** in areas as large as possible in one operation, consistent with achieving specified surface regularity and the levels required, to minimise the number of joints. If the screed is not to be covered, edges at joints should be rounded to a 3 mm radius.

• Unless otherwise specified, the strength of a hardened sand-cement screed can be tested with the “BRE screed tester”. The indentation resulting from four impacts of the mass is measured and is an index of screed strength. Acceptance limits for various strength categories are given in the table below.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum permissible depth of indentation after dropping the mass four times, mm</td>
<td>Strength category</td>
<td>Description</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>Areas expected to take relatively heavy traffic and/or where any disruption at a later date would be unacceptable; examples are hospital operating suites and corridors; rooms requiring micro- or dust-free environment Public areas such as lift lobbies, circulation areas within shops, foyers, canteens and restaurants, public rooms in residential accommodation; hospital wards</td>
</tr>
<tr>
<td>4</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>C</td>
<td>Offices, consulting rooms, domestic premises</td>
</tr>
</tbody>
</table>

• All **structural screed mix designs** are subject to approval by the structural engineer. Cement to comply with SANS 50197.

• Bonded and un-bonded **toppings** (not screeds) are specialist applications and need to be discussed in detail with the engineer.

**i) STRUCTURAL STEEL**

• All structural steel to **be fabricated and erected** in accordance with the relevant requirements of SANS 10162, SANS 10167, SANS 10044, SANS 2001-CS1 and SANS 1921-3.

• All dimensions and levels should be checked on site prior to issuing shop drawings. Any discrepancies should be brought to the attention of the engineer and architect. Shop drawings will only be checked for compliance with the design intent.

• A complete set of shop drawings shall be submitted to the engineer, architect and sheeting specialist subcontractor for approval before fabrication. Shop drawings to take sheeting requirements into account.
For measurement purposes the following finish can be assumed:

- All cold rolled steel members to be pre-galvanised
- All internal steel to receive 1 coat of primer (40micron red oxide or similar approved) and 2 coats of polyurethane enamel (40microm min per coat) to architect's specification.
- All external steel to be hot-dip galvanised.

Where temporary bracing or propping is required the contractor shall be responsible for the design, erection, maintenance and removal of such supports.

C3.6.4 ELECTRICAL

PART FIVE: DETAILED SPECIFICATION

SECTION A: GENERAL


5A1 SCOPE OF WORK

.1 The following work is required to be done by the electrical contractor:

.1 LV reticulation
.2 Supply & installation of LV distribution boards
.3 Small power and lighting installation
.4 General earthing and bonding
.5 Telephone & IT System – only wireways and power supplies
.6 Access Control System – only wireways and power supplies
.7 Intercom System – only wireways and power supplies
.8 Fire Protection System – only wireways and power supplies
.9 Chasing of brickwork

.2 The following sections are NOT included:

.1 Connection fee
.2 Manholes
.3 Lightning Protection System
.4 Sealing of penetrations through walls and floor slab.
.5 Sleeves of 150mm diameter or less
.6 Trenching and backfilling
PART FIVE: DETAILED SPECIFICATION

SECTION B: ELECTRICITY SUPPLY AND DISTRIBUTION BOARDS

5B1 ELECTRICITY SUPPLY

.1 General

The scope of works includes for the supply, delivery, installation and commissioning of a new 500kVA Minisub to ACSA's specification. Installation of a new ring feed 95mm² 11KV PILC cable from the RMU within the existing Gate Gourmet minisub to the new GSE minisub, including the terminations of the cable. The contractor is responsible for the installation of all the cables and sub distribution boards downstream of the GSE minisub. Refer to the overall LV schematic (2500-E-SLD-001) and the site plan cable reticulation (2500-E-CR-001).

5B2 EARTHING

.1 Earthing must be in compliance with City of Cape Town's Specification and requirements.

5B3 DB – M

.1 General

The board shall be of the outdoor weather proof floor standing type with doors and arranged for front and rear access. The incoming feeder shall enter via the bottom with PVC/SWA/PVC Cu ECC cables and outgoing feed will exit via the bottom with PVC/SWA/PVC Cu ECC cables. Colour of frame and panels to be avocado green.

The board shall be of the surface mounted type without doors and arranged for front access only. The incoming feeders shall enter via the bottom with PVC/SWA/PVC Cu EC

.2 Fault level

The board and its equipment shall be rated for a fault level of not less than 20kA at 400V unless otherwise indicated.
PART FIVE: DETAILED SPECIFICATION

SECTION C: DISTRIBUTION

5C1 SCHEDULE OF MAINS

Refer to the attached Part 10 - Cable Schedule.

5C2 TYPE OF CABLE

.1 "Armoured cables" shall be PVC/SWA/PVC with copper conductors.
.2 All other conductors and wiring shall be copper.

5C3 EARTHING

Where cables are run in groups it is only necessary to run one earthwire per group of cables, provided that the maximum earthwire relating to the group is used. Where teeing off from the main earth is done, this shall be to the satisfaction of the Council and Engineer.

5C4 CABLE ROUTES

All cable routes shall be confirmed with the Engineer and the Architect prior to installation.

5C5 TRENCHING (LV CABLES)

.1 General

All trenching outside the building shall fall within the scope of the electrical contract.

.2 LV cables

Must be laid on 100mm sifted sand, and covered with 100mm sifted sand and then danger tape. Cables to be 600mm below finished level.

.3 Backfilling

All trenches are to be backfilled and compacted in 150mm layers to 91% MOD AASHTO.

.4 Cable markers

Not Required for LV Cables.
5C6 SLEEVES

All electrical and Telkom sleeves shall be supplied and installed by the electrical contractor. In addition to the sleeves shown on the electrical drawings, Electrical Contractor to ensure sufficient sleeves/conduits are provided for all power, lighting, security and comms services (internal and external).

5C7 CABLE FIXING

All cables installed on cable trays / ladders are to be labelled, secured & neatly strapped using cable ties.
PART FIVE: DETAILED SPECIFICATION

SECTION D: GENERAL LV INSTALLATION

5D1 LUMINAIRES

.1 General

The Engineer will call for separate tenders for the supply of luminaires, including lamps, and the successful Tenderer shall allow for purchase, timely delivery, for storage on site, of luminaires. Note that the Prime Cost Amount as provided excludes any sub contractor’s markup, and is therefore nett.

.2 Schedule of luminaires

The following schedule forms a general description of the luminaires as indicated on the drawings, and items such as "cabtyre and plugtop" are therefore indicative of the type of outlet and final connection to be allowed for.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>LUMINAIRE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Enclosed LED luminaire, complete with 39W LED lamps (4000K)</td>
</tr>
<tr>
<td>F2</td>
<td>Enclosed LED luminaire, complete with 39W LED lamps (4000K)</td>
</tr>
<tr>
<td>F3</td>
<td>Zone 1 rated, Enclosed Channel Fluorescent luminaire, complete with LED lamps Cool White fluorescent lamps &amp; Pre-heat ECG</td>
</tr>
<tr>
<td>H</td>
<td>High Bay LED luminaire, complete with 150W LED Lamp (4000K)</td>
</tr>
<tr>
<td>HE</td>
<td>Same as H with 60min Battery Backup LED lamps</td>
</tr>
<tr>
<td>R1</td>
<td>Recessed 600x600 LED luminaire with 40W LED lamp (4000K)</td>
</tr>
<tr>
<td>R1E</td>
<td>Same as R1 with 60min Battery Backup</td>
</tr>
<tr>
<td>B1</td>
<td>Surface mounted bulkhead complete with 15W LED Lamp (4000K)</td>
</tr>
<tr>
<td>B1E</td>
<td>Same as B1 with 60min Battery Backup</td>
</tr>
<tr>
<td>B2</td>
<td>External Surface mounted bulkhead complete 20W LED lamp (4000K)</td>
</tr>
<tr>
<td>L1</td>
<td>75mm Diameter Recessed Downlighter with 13W LED lamp (4000K)</td>
</tr>
<tr>
<td>D1</td>
<td>225mm Diameter Recessed Downlighter with 18W LED lamp (4000K)</td>
</tr>
<tr>
<td>B</td>
<td>1.2m Bollard light fitting with 16W LED Lamp (4000K)</td>
</tr>
<tr>
<td>F1 (Floodlight)</td>
<td>External weatherproof LED floodlight with 48W LED Lamp (4000K)</td>
</tr>
<tr>
<td>P</td>
<td>6m Pole Top luminaire complete with 65W LED Lamp (4000K)</td>
</tr>
</tbody>
</table>
.3 External Light Point

The electrical contractor shall allow for a night mockup of the external lighting and shall make the necessary allowances for extension cords, etc.
The electrical contractor shall also provide the necessary attendance on the Architect and Engineer should a lighting demonstration be required on site e.g., he shall equip one or two luminaires with cabtyre and 16A plugtops, and provide suitable extension leads so as to finalise mounting positions.

The external lighting shall comprise of post top luminaires on 6m poles to illuminate the internal roadway and parking areas and bollard light fittings for pedestrian walkways. For this light point rate the contractor shall allow for six lights per circuit using 4mm² x 3 core SWA cables buried minimum 600mm below FGL and termination on the 5A MCB within the pole. This point rate shall also include for the wiring from the pole top down from the 5A MCB in the pole. The installation and commissioning of pole top light fitting, complete with lamps are to be excluded from this light point rate.

The installation rate shall include one bag of cement per pole, with each pole buried 1000mm into the ground, the installation of the pole and post top fitting complete with lamps and commissioning. The final positions of all external luminaires must be checked with the Architect and Engineer before installation. The Electrical Subcontractor shall allow for any concreting that may be required to support these luminaires. The Electrical Contractor shall ensure that adequate sleeves are installed from the distribution boards to the outside of the building for this purpose.

.4 Lighting to the Warehouse

The warehouse shall be lit using rows of High Bay LED luminaires surface mounted onto P1000 trunking suspended 6.6m AFFL. All wiring on the basis of a maximum of 6 (six) points per circuit, using 2.5mm2 conductors. Installation and commissioning of luminaires and lamps are to be excluded from this point rate.

.5 Lighting to the ablutions

These areas shall be lit using recessed round downlighters complete with 10W LED lamps and 3m cabtyre with 5A plugtop. All wiring on the basis of a maximum of 12 (Twelve) points per circuit, using 2.5mm2 conductors installed in trunking. The Electrical Subcontractor shall install surface mounted 6A unswitched plug sockets for the connection of luminaires. Installation and commissioning of luminaires and lamps are to be excluded from this point rate.

.6 Lighting to Offices

These areas shall be lit using recessed fluorescent fittings complete with LBR diffusers and 40W LED lamps. All wiring on the basis of a maximum of 10 (ten) points per circuit, using
2.5mm2 conductors installed in trunking. The Electrical Subcontractor shall install surface mounted 6A unswitched plug sockets for the connection of luminaires. Installation and commissioning of luminaires and lamps are to be excluded from this point rate.

.7  Escape Route Lighting

All escape routes and escape stairs shall have 24 hrs. lighting fed 60min Battery backup. All wiring on the basis of a maximum of 10 (Ten) points per circuit; using 2.5mm2 conductors shall be used throughout, in conduit. The Electrical Subcontractor shall install flush mounted conduiting chased into brickwork or cast flush in concrete or surface mounted on steel and to terminate in a 60mm round PVC conduit box for the connection of luminaires. Installation and commissioning of luminaires and lamps are excluded from this point rate.

.8  External Flood Lights

The external yards shall be lit using surface mounted LED floodlights mounted onto the façade of the building. Walkways shall be lit using surface mounted outdoor bulkheads mounted onto the building façade. All wiring on the basis of a maximum of 6 (Six) points per circuit, using 2.5mm2 conductors throughout in conduits. The Electrical Subcontractor shall install a flush mounted 60mm round PVC conduit box positioned behind the roof sheeting or within the brick work. Installation and commissioning of luminaires and lamps are to be excluded from this point rate.

.9  Lighting to the stores / washbay / service pit

These areas shall be lit using enclosed vapour proof LED fittings, surface mounted below the soffit. All wiring on the basis of a maximum of 10 (Ten) points per circuit, using 2.5mm2 conductors. The contractor shall install flush mounted conduiting chased into brickwork or cast flush in concrete or surface mounted on steel and to terminate in a 60mm round PVC conduit box for the connection of luminaires. Installation and commissioning of luminaires and lamps are to be excluded from this point rate.

.10  Switching of Internal & External lighting

The lighting circuits within the buildings shall be individually switched as indicated on the drawings. The external lighting control shall be configured for photocell ‘ON’ and ‘OFF’.

.11  Light switches / Master switches

A 16A single lever light switch shall control one or more luminaires on the same circuit, and shall include accessing of the circuit, extension boxes shall be used if required, wiring, conduit box, switch, coverplate and termination shall be included in this point rate. Master switches will be required in various locations to switch on/off all the lighting within the blocks. The master switches shall be wired back to the relevant DB.
.12 Occupancy Sensors

The toilets will be controlled using occupancy sensors.

.13 Photocell Sensors

Supply and install external photocell circuited to contactors within DB for external lights.

5D2 A. POWERSKIRTING

.1 General

As per clause 4.13

Powerskirting shall be the 2 compartment, two tier PVC skirting with divider, including bends, splices and end caps. Colour to be confirmed. The feeder conduits to the powerskirting shall be secured in the walls, for rear entry into the powerskirting. Care shall be taken where these conduits leave the distribution boards and telephone data/risers and terminate behind powerskirting, that they are distinctly separated so as to allow for uniform pouring of concrete in the slabs.

B. CABLE TRAYS, WIRE BASKET AND TRUNKING/ UNISTRUT

.1 General

As per clause 4.15

Cable trays, wire baskets and trunking shall be supplied and installed along the routes as indicated on the drawings. All Cable trays, wire baskets and trunking shall be of the medium duty type unless otherwise specified. All communications cabling wire basket shall be mesh tray. All Cable trays, wire baskets and trunking shall be hot dip galvanised. All Cable trays, wire baskets and trunking must be installed according to an approved method of fixing and should include all brackets, splices etc required for installation.

5D3 POWER OUTLETS

.1 General

As per clause 4.21
.2 Switched socket outlets

Circuits for switch socket outlets for general use shall be protected with 20A SP circuit breakers and earth leakage isolator and they do not require individual circuit breaker or fuse protection. The Electrical Subcontractor shall ensure that these are "standard type", so as to prevent users from inserting "standard" plugtops into "dedicated" outlets, as the latter are not protected against earth leakage faults.

The electrical contractor shall allow in his tender price for the supply, delivery and installation on the following basis:-

2A 1 x 16A Switched socket outlet installed on powerskirting complete with coverplate
Allow 4 no. per circuit, 2.5mm2 conductors with 2.5mm2 BCEW within conduit, including connection of sso, circuit breaker costed elsewhere.

.2B 16A Dedicated Switched Socket Outlet (red sso with shaved earth pin) installed on powerskirting complete with coverplate
Allow 4 no. per circuit, 2.5mm2 conductors with 2.5mm2 insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2C 1 x 16A Single Switched socket outlet installed in brick wall, complete with coverplate
Allow 4 no. per circuit, 2.5mm2 conductors with 2.5mm2 BCEW within conduit, including connection of sso, circuit breaker costed elsewhere.

.2D 1 x 16A Single Dedicated Switched socket outlet installed in brick wall, complete with coverplate
Allow 4 no. per circuit, 2.5mm2 conductors with 2.5mm2 insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2E 16A Double Switched Socket Outlet installed in brick wall complete with coverplate
Allow 4 no. per circuit, 2.5mm2 conductors with 2.5mm2 BCEW within conduit, including connection of sso, circuit breaker costed elsewhere.

.2F 1 x 16A Single Switched socket outlet installed in Insulated wall, complete with coverplate
Allow 4 no. per circuit, 2.5mm2 conductors with 2.5mm2 BCEW within conduit, including connection of sso, circuit breaker costed elsewhere.
.2G  1 x 16A Double Switched socket outlet installed in Insulated wall, complete with coverplate

Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² BCEW within conduit, including connection of sso, circuit breaker costed elsewhere.

.2H  16A Single Dedicated Switched Socket Outlet ( red sso with shaved earth pin )
installed in dry wall complete with coverplate

Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2J  16A Double Dedicated Switched Socket Outlet ( red sso with shaved earth pin )
installed in dry wall complete with coverplate

Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2K  1 x 16A Single Switched socket outlet installed surface wall mounted, underside soffit or in ceiling void, complete with coverplate

Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² BCEW within conduit, including connection of sso, circuit breaker costed elsewhere.

.2L  16A Single Dedicated Switched Socket Outlet ( red sso with shaved earth pin )
installed surface underside soffit or in ceiling void, complete with coverplate

Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2M  1 x 16A Double Switched socket outlet installed surface underside soffit or in ceiling void, complete with coverplate

Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² BCEW within conduit, including connection of sso, circuit breaker costed elsewhere.

.2N  16A Double Dedicated Switched Socket Outlet ( red sso with shaved earth pin )
installed surface underside soffit or in ceiling void, complete with coverplate

Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2P  16A 3 pin Industrial Switched Socket Outlet ( with isolator switch )   installed surface on wall or column, complete in IP65 enclosure
Allow 4 no. per circuit, 2.5mm² conductors with 2.5mm² insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2Q 16A 5 pin Industrial Switched Socket Outlet (with isolator switch) installed surface on wall or column, complete in IP65 enclosure

Allow 2 no. per circuit, 2.5mm² conductors with 2.5mm² insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.2R 32A 5 pin Industrial Socket Outlet installed surface on external column or wall, complete in IP67 enclosure

Allow 1 no. per circuit, 6mm² conductors with 4mm² insulated earth wire within conduit, including connection of sso, circuit breaker costed elsewhere.

.3 30A Double pole isolator for AC Unit

This type of outlet shall be provided for the AC units or motors, (the latter supplied and installed by others). Allow 1 no. per circuit, using 4mm² conductors with 2.5mm² BCEW within conduit, including 30A DP local isolator, 25A circuit breaker and cables measured elsewhere. Allow only for supply and installation of Isolators.

.4 30A Triple pole isolator for Fresh Air or Extract Unit

This type of outlet shall be provided for Units or motors (the latter supplied and installed by others). Allow 1 no. per circuit, using 6mm² conductors with 4mm² BCEW within conduit, including 30A TP local isolator, 20A circuit breaker and cables measured elsewhere. Allow only for supply and installation of Isolators.

.5 60A Triple pole isolator

This type of outlet shall be provided for any motors (the latter supplied and installed by others). Allow 1 no. per circuit, using 10mm² conductors with 4mm² BCEW within conduit, including 60A TP local isolator, 30A circuit breaker costed elsewhere.

.6 Unwired Hand Drier Points

These will be supplied & installed by others and shall be located within toilets, alongside wash basins. Allow for conduits from the db to 100 x 100mm drawbox positioned just below underside ceiling and to terminate in a round conduit box at 1400mm AFFL, all complete with blank coverplates. The local 20A DP Isolator, 20A circuit breaker 4mm² conductors + 2.5mm² BCEW shall NOT be installed unless indicated otherwise.

.7 Watertight Isolators and SSO’s
These must have an appropriate IP rating.

.8 20A Double pole isolator for Extract / Fresh Air Fan

This type of outlet shall be provided for the Fresh air and Extract fans, (the latter supplied and installed by others). Allow 3 no. per circuit, using 2.5mm² conductors with 1.5mm² BCEW within conduit, including 20A DP local isolator, 16A circuit breaker costed elsewhere.

.9 Floor Box Type ‘A’

Floor box shall consist the following:
- 1 x 16A normal SSO
- 1 x 16A dedicated 16A SSO
- 1 x Data Point
- 1 x Tel Point

Allow 2 no. per circuit for the normal 16A SSOs and 2 no. per circuit for the dedicated 16A SSOs, 2.5mm² conductors with 2.5mm² insulated earth wire within conduit, including connection of SSOs, circuit breakers costed elsewhere.

5D4 GEYSERS

As per Clause 4.24

5D5 CONDUITS

Only SABS-approved PVC conduit may be used.

5D6 AS-BUILT DRAWINGS

The Electrical Contractor must carry out a final 'as built' survey of the cable and all other installations, including conduit and drawboxes, outlets etc and submit to the Engineer 'as built' route plans of the complete installation. The following information shall be reflected on the plans or submitted as separate schedules with the plans:
- Overall length of each cable
- Locations of all joints (if any) in relation to permanent reference points.
- Locations of all cable markers in relation to permanent reference points.

The works will be deemed incomplete until all 'as built' drawings and information have been submitted to the Engineer.
5D7  VOLTAGE CHECK
Contractor shall ensure the voltage readings taken, are within the acceptable tolerances before energising the LV systems.

5D8  BALANCING OF SUPPLY
Contractor shall ensure that the entire installation is balanced as closely as possible, and report the readings to the Engineer in writing.

5D9  MAINTENANCE AND INSTRUCTION MANUALS
The Contractor shall prepare and hand over to the Engineer on practical completion 3 x sets of operating and maintenance instruction manuals.

5D10 INSTALLATION
The entire installation shall comply with the requirements of the SANS 10142 (as amended) Code of Practice, as well as with those of the local authority.

5D11 PHOTOCELLS
Allow for supply, installation and connection of up to 4 x photocells located on external wall. Wire from DB to photocell in 4c 1,5mm2 PVC SWA Cu cable using 1 core as earth and terminate onto photocell.
PART FIVE: DETAILED SPECIFICATION

SECTION E: TELEPHONE PROVISIONS

5E1 MAIN TELEPHONE SLEEVES

The Electrical Contractor shall supply and install trunking, conduit, HDPE sleeves as shown on the drawings. The Electrical Subcontractor shall supply and install drawwire and allow for the necessary attendance.

5E2 TELEPHONE DISTRIBUTION POINTS

The telephone distribution shall be via 25mm conduits / cable basket / cable basket riser and shall be reticulated to the comms basket as indicated on the drawings.

5E3 CONDUITS

The Electrical Contractor shall supply & install all conduits as shown on the drawings, complete with galvanised drawwire. Unless otherwise indicated all conduits shall be minimum 25mm.

5E4 TELEPHONE OUTLETS

.1 The Tenderer shall allow for outlet points as indicated on the drawings. The quantities in the Provisional Sums are provisional and will be subject to re-measurement.

.1A 1 x blank cover installed on powerskirting for telephone

Allow 1 no. blank cover on powerskirting, including 100 x 50mm drawbox behind powerskirting and 1 x 25mm conduit link to comms cable basket, complete with galvanised draw wire.

.1B 1 x blank cover installed on 100 x 100mm draw box flush mounted in brick work or cast in concrete for the telephone point

Allow 1 no. blank cover fitted onto 100 x 100mm drawbox, including 1 x 25mm conduit link to comms cable basket, complete with galvanised draw wire.

.1C 1 x blank cover installed on 100 x 100mm draw box flush mounted in drywall or surface mounted in ceiling void for the telephone point

Allow 1 no. blank cover fitted onto 100 x 100mm drawbox, including 1 x 25mm conduit link to comms cable basket, complete with galvanised draw wire.

5E5 TELKOM / COMMS MANHOLES

The Telkom / Comms manholes indicated on the site plan will be constructed by others.
5F1 GENERAL

Smoke Detection, Access control, CCTV and Data reticulation systems will be supplied and installed by others, outside the scope of this sub-contract. The Electrical Sub Contractor shall, however, provide conduits, drawboxes, outlets, trunking etc as indicated on the drawings.

5F2 DRAWWIRES

All conduits shall be fitted with galvanised draw-wires.

5F3 DATA OUTLETS

.1 The Tenderer shall allow for outlet points. The quantities in the Provisional Sums are provisional and will be subject to re-measurement.

.1A 1 x blank cover installed on powerskirting for data point

Allow 1 no. blank cover on powerskirting, including 100 x 50mm drawbox behind powerskirting and 1 x 25mm conduit link to comms cable basket, complete with galvanised draw wire.

.1B 1 x blank cover installed on 100 x 100mm draw box flush mounted in brick work or cast in concrete for data point

Allow 1 no. blank cover fitted onto 100 x 100mm drawbox, including 1 x 25mm conduit link to comms cable basket, complete with galvanised draw wire.

.1C 1 x blank cover installed on 100 x 100mm draw box flush mounted in drywall or surface mounted in ceiling void for data point

Allow 1 no. blank cover fitted onto 100 x 100mm drawbox, including 1 x 25mm conduit link to comms cable basket, complete with galvanised draw wire.

5F4 DRAWWIRES

All conduits shall be fitted with galvanised draw-wires.
5F5 SMOKE DETECTION POINTS

.1 The Tenderer shall allow for outlet points. The quantities in the Provisional Sums are provisional and will be subject to re-measurement.

.1A 1 x blank cover installed on roundbox mounted flush with ceiling or surface mounted underside roof for fire detection point

Allow 1 no. blank cover fitted onto roundbox, including 1 x 25mm conduit link to the comms cable basket.

5F6 AUDIO VISUAL POINTS

.1 The Tenderer shall allow for outlet points. The quantities in the Provisional Sums are provisional and will be subject to re-measurement.

.1A 1 x blank cover installed on 100 x 100mm draw box surface mounted in ceiling void for A/V point

Allow 1 no. blank cover fitted onto 100 x 100mm drawbox, including 1 x 25mm conduit link to the comms cable basket, complete with galvanised draw wire.

5F7 INTERCOM POINTS

.1 The Tenderer shall allow for outlet points. The quantities in the Provisional Sums are provisional and will be subject to re-measurement.

.1A 1 x blank cover installed on 100 x 100mm drawbox flush mounted in brick work or cast in concrete for Intercom point

Allow 1 no. blank cover fitted onto drawbox, including 1 x 25mm conduit link to the comms cable basket, complete with galvanised draw wire.

5F8 TV POINTS

.1 The Tenderer shall allow for outlet points. The quantities in the Provisional Sums are provisional and will be subject to re-measurement.

.1A 1 x blank cover installed on 100 x 100mm draw box flush mounted in brick work or cast in concrete for TV point
Allow 1 no. blank cover fitted onto 100 x 100mm drawbox, including 1 x 25mm conduit link to the comms cable basket, complete with galvanised draw wire.

5F9  ALARM POINTS

.1  The Tenderer shall allow for outlet points. The quantities in the Provisional Sums are provisional and will be subject to re-measurement.

.1A  1 x blank cover installed on 100 x 100mm draw box flush mounted in brick work or cast in concrete for PIR point

Allow 1 no. blank cover fitted onto 100 x 100mm drawbox, including 1 x 25mm conduit link to the comms cable basket, complete with galvanised draw wire.
PART FIVE: DETAILED SPECIFICATION

SECTION G: SPECIFICATION FOR MINIATURE SUBSTATIONS (if APPLICABLE)

1. Scope

This enquiry makes provision for the supply and delivery of miniature substations according to the technical specifications attached hereto.

2. Operating Conditions

All material and equipment supplied and fitted must be designed and manufactured for successful operation under the following conditions:

2.1 Environmental conditions

2.1.1 Altitude above sea level ± 100m;
2.1.2 Ambient temperature between –4°C and +40°C;
2.1.3 Corrosive

2.2 Electrical conditions

2.2.1 Fault level 350 MVA at 11 kV;
2.2.2 Impulse level 125 kV

3. General Construction

3.1 The miniature substation shall be suitable for outdoor use and shall be divided into Three compartments:

3.1.1 MV compartment

3.1.2 Transformer compartment

3.1.3 LV compartment

3.2 Roof & Walls

The roof and walls shall be constructed of 3CR12 steel with a minimum thickness of 2mm and shall be of a single unit construction.

The internal equipment shall be protected against water and shall be vermin proof.

3.3 Doors
The doors shall be constructed of 3CR12 steel with a minimum thickness of 2mm and shall be watertight and vermin proof.

3.4 Hinges

Hinged doors shall exert uniform pressure at all points on the gasket when the door is closed to ensure proper closing and to prevent the penetration of water and vermin.

3.5 Locks

Doors shall be provided with 3-point locking catches with padlock facilities.

3.6 Base Construction

The housing shall be erected on a u-section steel frame with measurements of not less than 75mm. It shall be rigid, robust and completely self-supporting.

3.7 Danger Signs

Danger signs shall be supplied on each door (skull and crossbones) and shall be in accordance with the OHS act. Doors must be indelibly marked H V/s and L V /s on the insides.

3.8 Paint & Colour

The metal shall be degreased and sand blasted to remove all dust and stains. It shall be painted with one coat of zinc chromate primer and two coats of scratchproof enamel of the colour "Avogadogreen" no. C12 in accordance with the standard specification SABS 1091 on the outside and white on the inside.

3.9 Bushings

Type C for MV Porcelain for LV

4. Specifications

The miniature substations shall be in accordance with the requirements of the following standard Specifications:-

<table>
<thead>
<tr>
<th>Standard</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>SABS 1029 &amp; 1030</td>
<td>Miniature substations</td>
</tr>
<tr>
<td>SABS780</td>
<td>Distribution transformers</td>
</tr>
<tr>
<td>SABS555</td>
<td>Transformer oil</td>
</tr>
<tr>
<td>SABS833</td>
<td>Bushings</td>
</tr>
<tr>
<td>SABS763</td>
<td>Galvanising</td>
</tr>
<tr>
<td>BS 923</td>
<td>Testing</td>
</tr>
<tr>
<td>BS 2631</td>
<td>Switchgear</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>BS 162</td>
<td>Switchgear</td>
</tr>
<tr>
<td>BS 159</td>
<td>Busbars</td>
</tr>
<tr>
<td>SABS1091</td>
<td>Paint Colour</td>
</tr>
<tr>
<td>BS 3938</td>
<td>Current Transformers</td>
</tr>
<tr>
<td>BS 89</td>
<td>Ammeters</td>
</tr>
<tr>
<td>BS 638</td>
<td>Welding cables</td>
</tr>
</tbody>
</table>

All wiring inside the miniature substation shall be done in accordance with the SABS Code of Practice for the wiring of premises.

5. **MV Compartment**

The MV compartment of all the miniature substation shall be equipped with a non-extensible ring main units in accordance with the following specification:

5.1 **General**

1. Unless otherwise stated 11kV Ring Main Units (RMU) shall comply with the requirements as described in NRS 006 – Switchgear – Metal Enclosed Ring Main Units (as amended).

2. **Characteristics of RMU components: switch disconnector or circuit breaker:**

   i. ii. Number of poles: Class: 3 indoor
   iii. Rated voltage: 12kV

   iv. Rated lightning impulse withstand voltage: 95kV (peak)
   v. Rated frequency: 50Hz
   vi. Rated short-circuit breaking current rated duration of short circuit:

3) RMU’s shall comprise of modular SF6 gas insulated Switch disconnectors and motorized SF6 gas insulated breaker type Transformer protection circuit breaker fitted with an overcurrent and earth fault protection relay.

4) It must be possible to padlock all switching functions of the RMU.
5.2 Earthing

The earth of the ring main unit shall be connected to the miniature substation's earth.

The underframe, neutral and transformer tank of each miniature substation shall be connected to the earth busbars with 70mm² copper conductors.

The MV and LV earth busbar shall be interconnected by means of a 70mm² copper conductor.

5.3 Cable end boxes

All material and equipment required for the termination of the various cable ends, shall be supplied by the Contractor.

5.4 Technical Information

Test certificates, technical details and brochures shall be submitted with the tender.

5.5 Shop Drawings

For switchgear, submit technical literature including dimensioned drawings of plan and elevations. The approval of shop drawings shall not relieve the manufacturer of his responsibility to the engineer to supply the MV equipment according to the requirements of this specification.

6. Transformer compartment

The transformer compartment of each miniature substation shall be equipped with transformers in accordance with the following specification.

6.1 General

The transformer shall be of the double wound, three phase, oil immersed, self cooled type and shall comply with SABS 780 of 1979 where applicable. The transformers shall be of the low loss sealed type.

6.2 Rating

The transformer shall be rated at 500 kVA when operating at an altitude of 100m above sea level and a maximum ambient temperature of 40°C. The maximum temperature rise at the specified maximum rating shall not exceed the limits as laid down in SABS 780 of 1979, table IV.

6.3 Internal Connections
The high voltage winding shall be connected in delta, and the low voltage winding in star, with the neutral brought out (Dyn11).

6.4 External Connections

The connections on the high and low voltage sides shall be brought out through suitable insulators.

The four bushings on the low voltage side shall all be of the same size.

6.5 Voltage Ratio

The transformers shall be designed for a no load voltage ratio of 11kV/400V/230. An externally operated off-load tap changing switch shall be provided enabling the secondary voltage to be varied from 95% to 105% in 5 steps.

6.6 Protection

The transformers shall be fitting with over temperature sensors to active tripping of the MV circuit breaker.

7. LV Compartment

The LV Compartment shall be equipped with the following indicating instruments:

1 x 420V voltmeter with HRC fuses and 4 position switch to measure phase voltages.

3 x 0-1000 A three indicator, combined instantaneous and maximum demand ammeters, one for each phase & appropriately labelled.

3 x 1500/5 class 3 current transformer for the ammeters.

The LV compartment is to be provided with tinned copper busbars complying with BS 159 and of suitable dimensions to carry the full load current of the transformer at a current density of not more than 1.5A/mm². The neutral bar shall have the same dimensions as the phase bars. An earth bar with cross section of 31.5 x 6.3mm shall be supplied along the full width of the LT compartment.

A 3-pin 16A single phase surface mounted industrial type power plug shall be mounted in the LV compartment.

In the low voltage compartment the following switchgear shall be installed: 800A COMPLETE WITH TRIP UNIT
8. Clearances

Earth clearance of at least 20mm must be maintained between all earthed conducting material and live points.

Where busbars, conductors or terminals consist of bare conductor material and are isolated by air only between phases and between phases and earth the clearances and lengths of isolators shall not be less than those specified in BS162, table 4 Class B.
COPPER SINGLE CORE PVC INSULATED CABLES, UNARMOURED, WITH PVC SHEATH 600/1000 V MANUFACTURED TO SANS 1507 - 3
COPPER 3 AND 4 CORE PVC INSULATED PVC BEDDED SWA PVC SHEATHED 600/1000 V CABLES, WITH INSULATED EARTH WIRE MANUFACTURED TO SANS 1507 - 3
3 CORE XLPE INSULATED PVC BEDDED, STEEL WIRE ARMoured, PVC SHEAthed 11KV CABLES TO BS 6622 & IEC 60502 TYPE A (INDIVIDUALLY SCREENED)

<table>
<thead>
<tr>
<th>CABLE NO</th>
<th>CABLE ORIGIN</th>
<th>CABLE TERMINATION</th>
<th>Material Type</th>
<th>CABLE TYPE</th>
<th>Distance [m]</th>
<th>Load [A]</th>
<th>No of CABLES</th>
<th>Cable Size [mm²]</th>
<th>Cond Size [mm²]</th>
<th>No of Cond</th>
<th>Type of Earth Cable [BARE OR INSULATED]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GATE GOURMET MINISUB</td>
<td>GSE MINISUB</td>
<td>Cu</td>
<td>3 CORE CU SWA</td>
<td>280</td>
<td>280</td>
<td>30</td>
<td>1</td>
<td>95</td>
<td>70</td>
<td>BARE</td>
</tr>
<tr>
<td>1</td>
<td>GSE MINISUB</td>
<td>DB-M</td>
<td>Cu</td>
<td>4 CORE CU SWA</td>
<td>10</td>
<td>40</td>
<td>800</td>
<td>4</td>
<td>95</td>
<td>70</td>
<td>BARE</td>
</tr>
<tr>
<td>1</td>
<td>DB-M</td>
<td>DB-T1 (MENZIES)</td>
<td>Cu</td>
<td>4 CORE CU SWA</td>
<td>230</td>
<td>230</td>
<td>150</td>
<td>1</td>
<td>120</td>
<td>70</td>
<td>BARE</td>
</tr>
<tr>
<td>1</td>
<td>DB-M</td>
<td>DB-T2 (BID AIR)</td>
<td>Cu</td>
<td>4 CORE CU SWA</td>
<td>175</td>
<td>175</td>
<td>150</td>
<td>1</td>
<td>95</td>
<td>50</td>
<td>BARE</td>
</tr>
<tr>
<td>1</td>
<td>DB-M</td>
<td>DB-T3 (SWISSPORT)</td>
<td>Cu</td>
<td>4 CORE CU SWA</td>
<td>130</td>
<td>130</td>
<td>200</td>
<td>1</td>
<td>95</td>
<td>50</td>
<td>BARE</td>
</tr>
</tbody>
</table>

NOTE: 1. THESE CABLE DISTANCES ARE APPROXIMATION
ONLY AND SERVE ONLY FOR DESIGN PURPOSES.
THE RESPONSIBILITY REMAINS WITH THE
ELECTRICAL CONTRACTOR TO MEASURE CABLE
DISTANCES BEFORE ORDERING THE CABLE.

2. THE ELECTRICAL CONTRACTOR IS REQUIRED TO RECORD ACTUAL CABLE DISTANCES FOR ALL CABLE RUNS ABOVE.
C3.6.5 FIRE INSTALLATION

AIRPORTS COMPANY SOUTH AFRICA G.S.E. FACILITY BUILDINGS
FIRE PROTECTION INSTALLATIONS

TENDER SPECIFICATIONS PREPARED BY: TECHNICAL SPECIFICATION FIRE PROTECTION INSTALLATION FOR AIRPORTS COMPANY SOUTH AFRICA

G.S.E. FACILITY BUILDINGS

1 GENERAL
In this document where the term “Main Contractor” or Builder is used, it shall mean the Principal Contractor and where the term “Sub-contractor” is used, it shall mean the Contractor appointed in terms of this document.

2 SCOPE OF CONTRACT AND SYSTEM DESCRIPTION
2.1 The scope of contract includes for the engineering and detail design, manufacture, supply delivery, installation, commissioning, handing over, contract guarantee, servicing and maintenance of the fire hosereels, fire signage and fire extinguishers for THREE new ACSA G.S.E buildings. All three buildings are identical, but the submitted price is to include for ALL THREE installations.

2.2 The installation comprises of:
2.2.1 Fire Hosereels, fire signage and fire extinguishers.
2.3 The description herewith must be read in conjunction with all specifications and does not necessarily include, specify or describe every item of material, labour or work required to ensure a complete installation as required from the Contractor.
2.4 All loose material and scrap generated by Contractor during the execution of the Works shall be removed from site by Contractor. On completion all Contractors rubbish and spoil, and that of it’s sub-contractors if any, shall be cleared from Site by the contractor. The Site must be left in a clean and tidy manner.

DRAWING NO DESCRIPTION
595/60/01 Typical Tenancy Fire Plan

4 BUILDER’S WORK DRAWINGS
4.1 Three copies of builder’s work drawings shall be submitted by the Sub-contractor after his appointment and in accordance with the construction programme.

4.2 The drawings shall include the following information:
- Confirmation of all builders work required.
- Confirmation of all dimensions and positions of openings and sleeves through brickwork and concrete structures.
- Details and positions of all electrical connections required.
- Requirements in respect of water supply points, drains, etc.
- All other relevant builder’s work information.

5 WORKSHOP DRAWINGS
5.1 Three copies of all workshop drawings shall be submitted for approval.
5.2 The workshop drawings shall be prepared after visits to the site in order to ensure co-ordination with the building structure and services on site. No claims for extra will be entertained due to offsets required after fabrication.

5.3 The workshop drawings shall be submitted timeously to comply with the Main Contractor's programme. A period of 2 weeks shall be allowed for approval of the drawings by the professional team. This period shall exclude any time required by the Sub-contractor to update and rectify the drawings in accordance with comments received from the professional team.

5.4 The Sub-contractor shall take note that all workshop drawings approved shall not relieve the Sub-contractor of his obligations to comply with the specification.

7 PROJECT DESCRIPTION
7.1 Material Specification:- Piping and fittings
7.1.1 Piping to be medium grade steel to BSS 1387 or SABS 62. Fittings to be malleable cast iron to BS 143 or SABS 509.
7.1.2 Welded joints are to be fabricated and welded in the contractor's workshop to SABS quality welding. No welding will be permitted on site unless approved by the Engineer and all hot works permits applied with all required safety measures in place.
7.1.3 Screwed joints are to be screwed up tightly with an approved jointing compound applied.
7.2 Pressure tests
7.2.1 Tests are to be done on the systems over a period of 12 hours to ensure the integrity of the systems. Test pressure is to be 1.5 times the working pressure at the lowest point of that piping network.
7.2.2 Any second fix installations will again be tested on completion.
7.2.3 The Engineer or Client's representative is to witness the start and end of the tests being given 24hour prior notice of the test.
7.3 Painting
7.3.1 All surfaces are to be cleaned to remove dirt, rust and grease before applying the priming coat.
7.3.2 All piping must be delivered to site with a workshop applied prime coat.
7.3.3 All new piping is to be painted as specified further and the cost thereof is to be included in that of the installation.
7.3.4 Piping is to be painted as follows: 1 coat red oxide primer 35micron D.F.T 1 coat SABS 681 universal undercoat 30micron D.F.T 1 coat acid/alkali resistant enamel 25micron D.F.T
7.4 Pipe Supports
7.4.1 Pipe supports are to be of galvanised materials and conform to supports as approved by the SABS and at intervals as laid out by the manufacturer/supplier.

8 PROGRAMME
The Main Contractor's programme is to be strictly adhered

9 FIRE SIGNAGE INSTALLATION
9.1 This project is a servicing facility comprising of workshops, offices spray booths and storage of spares.
9.2 Material Specification: -
9.2.1 All fire signage shall be either single or double sided anodised aluminium frames Photoluminescent Signage to SABS 1186.
9.2.2 Signage to comply fully with the latest relevant SANS codes and regulations.
9.2.3 Signs must carry the mark of approvals.
9.2.4 All signs must be of the photoluminescent type and conform to the sizes as indicated on drawings or in the specification or in the bill of quantities.
9.2.5 Wall mounted signs are to have standard finish aluminium trim and be screw fixed with wall plugs.
9.2.6 Hanging signs are to have standard finish aluminium trim and be hung from ceiling tee's with clips and suitable cable or chain. Samples applicable to tender offer is to be submitted upon request.
9.2.7 No fixing via glue, double sided tape or silicon will be accepted.
9.2.8 Signage hung from the ceiling shall be suspended from the ceiling or roof structure be means of two small link chrome plated chain fixed by means of ring-clips to the sign and self-tapping screws and eye-lugs to the ceiling structure.
9.2.9 Signage fixed to walls shall be fixed by means of four 4.0 x 32mm steel screws and plastic wall plugs.
9.2.10 The signage shall be of the following minimum size:-
Type E1 – E6 190 x 380mm
Type E7 – E9 190 x 190mm
Type E10 – E14 190 x 380mm
Type 15A & E15B 190 x 190mm
Type E16 – E19 190 x 578mm
Type E20 – E24 190 x 190mm
Type F1 – F3 190 x 772mm
Type F4 – F12 190 x 578mm
Type F13 – F22 190 x 380mm
Type F23 190 x 578mm
Type F24 800 x 400mm
Type F25 – F38 190 x 190mm
Type F39 – F47 190 x 380mm
Floor Numbers 150 x 100mm

10 Fire Extinguishers

10.1 All fire extinguishers shall be either 4.5 kg DCP [offices] or 9 kg DCP [workshop].

10.2 All fire extinguishers shall be positioned as shown on the drawings or in an unobstructed position agreed to and approved by the Mechanical Engineers.
10.3 All fire extinguishers shall comply with the requirements of SANS 1910, and shall be installed, maintained and serviced by competent persons in accordance with SANS 1475-1 and SANS 10105-1.

10.4 Fire Extinguishers complete with backing boards as indicated on the Tender drawings are to be installed.
10.5 All equipment must comply with all SANS codes applicable to fire extinguishers.

10.6 The contract is to include for the annual service of extinguishers at the end of the 18 month guarantee period. Any refilling, repair or reconditioning required at that time is deemed to be part of the 18 month guarantee and maintenance period, unless the seal has been broken and it is evident that the extinguisher has been used.

10.7 A schedule listing each extinguisher separately, including a unique reference number [which is also to be neatly and clearly shown on each extinguisher and it's backing plate], location, type and mass of extinguisher must be provided as part of the contract. The schedule must be provided in the form of an A4 plastic covered ring binder, with printed pages contained within A4 plastic envelopes.
10.8 The description herewith must be read in conjunction with all specifications and drawings provided and does not necessarily include, specify or describe every item of material, labour or work required to ensure a complete installation as required from Contractor.

10.9 All loose material and scrap generated by Contractor during the execution of the Works shall be removed from site by Contractor.

11 FIRE HOSEREEL INSTALLATION
11.1 The building requires fire hosereels. The water pressure and flow are to be catered for by the site fire mains installed by the Civils contractor. A connection point as detailed will be left outside the buildings.
11.2 Fire hose reels shall be of the wall mounting, non-swing type manufactured and tested in compliance with SABS 543.
11.3 Fire hose reels shall be installed, maintained and serviced by competent persons in accordance with SANS 1475-2 and SANS 10105-1.
11.4 All equipment must comply with all SANS codes applicable to fire hose reels.
11.5 Each unit shall be supplied complete with control valve, 30 metres of braided reinforced rubber or P.V.C. reinforced pressure hose of 20mm nominal bore, rotary type nozzle cock and nozzle bracket.
11.6 All sharp or protruding portions of clamps or brackets are to be removed or made safe.

13 MAINTENANCE
13.1 The Sub-contractor shall provide free maintenance for a period of 18 months following the hand over to the Client.
13.2 The maintenance shall include for all management, labour, lubricating materials, cleaning materials and transport.
13.3 Consumables not specified above are excluded from the sub-contract.
13.4 Quarterly service reports, signed by the Client’s representative, shall be submitted to the Engineer.

14 GUARANTEES
14.1 All new equipment shall be guaranteed for a period of 18 months.

15 MAINTENANCE MANUALS AND AS-BUILT DRAWINGS
15.1 Approved versions of Maintenance Manuals incorporating commissioning data and as-built drawings shall be provided in the form of 1 hard copy and a suitable electronic storage device containing the manuals and as-built drawings in electronic format.

16 COMMISSIONING AND HAND OVER
16.1 The entire installation shall be commissioned and handed over to the Client.
16.2 The Engineer shall witness performance tests to demonstrate satisfactory operation.

3.6.6 HVAC INSTALLATION
FOR AIRPORTS COMPANY SOUTH AFRICA
G.S.E. FACILITY BUILDINGS

1 GENERAL
In this document where the term “Main Contractor” or Builder is used, it shall mean the Principal Contractor and where the term “Sub-contractor” is used, it shall mean the Contractor appointed in terms of this document.

2 SCOPE OF CONTRACT AND SYSTEM DESCRIPTION
2.1 The scope of contract includes for the engineering and detail design, manufacture, supply delivery, installation, commissioning, handing over, contract guarantee, servicing and maintenance of the air conditioning and mechanical ventilation installations for

2.2 The installation comprises of:
2.2.1 Mechanical ventilation and air conditioning

2.3 The description herewith must be read in conjunction with all specifications and drawings provided and does not necessarily include, specify or describe every item of material, labour or work required to ensure a complete installation as required from the Contractor.

2.4 All loose material and scrap generated by Contractor during the execution of the Works shall be removed from site by Contractor. On completion all Contractors rubbish and spoil, and that of it’s sub-contractors if any, shall be cleared from Site by the contractor. The Site must be left in a clean and tidy manner.

3 TENDER DRAWINGS
595/70/01 Typical Tenancy Mechanical Ventilation Plan

4 BUILDER’S WORK DRAWINGS
4.1 Three copies of builder’s work drawings shall be submitted by the Sub-contractor after his appointment and in accordance with the construction programme.

4.2 The drawings shall include the following information:
- Confirmation of all builders work required.
- Confirmation of all dimensions and positions of openings and sleeves through brickwork and concrete structures.
- Details and positions of all electrical connections required.
- Requirements in respect of electrical supply points, drains, etc.
- All other relevant builder’s work information.

5 WORKSHOP DRAWINGS
5.1 Three copies of all workshop drawings shall be submitted for approval.

5.2 The workshop drawings shall be prepared after visits to the site in order to ensure co-ordination with the building structure and services on site. No claims for extra will be entertained due to offsets required after fabrication.

5.3 The workshop drawings shall be submitted timeously to comply with the Main Contractor’s programme.

5.4 The Sub-contractor shall take note that all workshop drawings approved shall not relieve the Sub-contractor of his obligations to comply with the specification.

THE CLIENT WILL NOT BE HELD RESPONSIBLE FOR ADDITIONAL TIME PENALTIES OR CLAIMS OR LATE
COMPLETION AS A RESULT OF LATE EQUIPMENT DELIVERY AND INSTALLATIONS

6.11 SHEETMETAL DUCTWORK

6.11.1 The sheet metal ducting shall be as per SABS 1238 standards.

6.11.2 Ducts are to be supported by means of galvanized rods and galvanized brackets. Fixing to concrete is to be by means of appropriately sized anchor bolts [expansion shields]. Shot pin/nails, sheet metal strap hangers and pop riveted supports are not acceptable.

6.11.3 Fixing to roof steel work to be by means of cleats, i.e. no drilling through trusses or purlins.

6.11.4 No other pipework or equipment is to be supported from these rods, brackets or ducts.

6.11.5 All rectangular duct joints above 325mm to be the flanged type ['mezz' flanges acceptable] and must be sealed against air leakage.

6.11.6 All ductwork shall be sealed at all transverse and longitudinal joints to eliminate air leakage. Special care should be taken at corners of flanges – extra gaskets are to be used in corners for medium pressure ductwork.

6.11.7 All ductwork fittings shall be of the long radius type or fitted with turning vanes as specified in SABS 1238. Similarly transformations shall be fitted with splitters as per SABS 1238.

6.11.8 Airtight access panels are to be provided at all fire dampers and duct volume controls.

6.12 AIR DIFFUSSION

6.12.1 All air terminals shall be as specified on the drawings.

6.12.2 Air terminal finish shall be powder coated, generally to a colour of the architects choice [tenderers to allow for white].

6.12.3 All required fixing brackets and hangers to support air terminal equipment shall be included in the air conditioning subcontract.

6.12.4 Air terminal type shall be as detailed on the drawing. All are constant volume and are to include air volume control mechanisms.

6.12.5 Door grilles (DG) are to be complete with matching rear frame; they shall be supplied and fitted. Finish being anodized aluminium.

6.13 FIRE DAMPERS

6.13.1 Fire dampers are to be SANS 193 approved. They are to be combination fire and balancing dampers unless dedicated fire dampers are approved by the mechanical engineers [to terminal units only].

6.14 NOISE CONTROL

6.14.1 Sound attenuators and vibration isolating equipment shall be provided to meet acceptable noise criteria shown below.
6.14.2 The contractor shall supply and install sound attenuators where indicated on the drawings.
6.14.3 Sound attenuators indicated on the drawings are selected based on air gap velocity and pressure drop. Attenuators tendered may not exceed these criteria.
6.14.4 Sound attenuators shall be selected so that the noise levels in the building due to the air conditioning and ventilation systems do not exceed the following noise criteria level:
   a) Factory NC45
   b) Office areas NC35
   c) Toilet areas NC40
   d) Site boundary 45 dBa

8 DEPARTURES FROM SPECIFICATIONS:
It is emphasized that the Tenderer’s offer must comply fully with the specification. This “offer to specification” forms the basis for the adjudication of this tender. Provided that the Tenderer’s “offer to specification” is acceptable to the client in every respect, only then may any alternative offer by him also be considered for the purposes of the award of the contract.
Should the Tenderer desire to make any departure from or modification to the specification, schedule of quantities or drawings, or to qualify his tender in any way, he shall set out his proposals clearly hereunder, or alternatively state them in a covering letter attached to his tender and referred to specifically hereunder. His proposal shall also set out the extra costs or savings that may be affected.
Should this page be left blank, or be detached from this tender documentation, and unless a departure is specifically detailed in this section, it will be deemed that the tender conforms strictly with the specification, without additional cost to the client. Further, the tenderer acknowledges the fact that should he elect, at the time of tendering, not to enter part or all information requested in this tender document, it will be taken that the Tenderer will be providing, without additional cost to the client item or items, not herein identified, all in accordance with the specification and to the approval of the client or his representatives.
ACSA GSE
PLUMBING AND DRAINAGE
SPECIFICATION
ACSA GSE

Plumbing and Drainage Installation
General Specification
Scope
The particular specifications included in this document define the systems, materials and equipment to be used for the hot and cold-water installation and the drainage installation for the above-mentioned project. The contractor shall adhere to these specifications at all times during this contract. Should there be any conflicting information, the Engineer shall be notified for immediate clarification prior to commencement of the works.

All rules, regulations, codes and standards as specified in the technical specifications shall apply unless otherwise specified in the particular specification.

All works set out in this document is to be executed in a first-class workmanlike manner and all equipment supplied shall be of new high-quality material, design and manufacture and free from any defects, suitable for providing an efficient, reliable and trouble free service.

The contractor shall provide guarantees from the manufactures and suppliers of all equipment and materials used on this project. As-built drawings and operating and maintenance manuals shall be provided. The contractor shall have sufficient knowledge of other trades to ensure that when installing his work, all other equipment unrelated to his installation is easily accessible for maintenance purposes. After completion of the entire system, the contractor shall ensure that all parts of the system are tested and adjusted to ensure that the systems operate to the satisfaction of the Engineer.

Detailed Material Specification

1. Domestic Hot and Cold Water
1.1 Domestic Hot and Cold Water Pipework 15mm to 54mm diameter All hot and cold water pipework to be Copper Class 2 to SABS 460/2. No labour bends shall be permitted on this project without prior approval from the Engineer.

No compression type fittings shall be used on this project.

All pipes in chases to be wrapped in minimum 2 layers of approved builder’s paper. All fittings shall be copper capillary soldered type used in accordance to SABS 1067. All fluxes (water soluble type only) and solders shall be as per the piping and fittings manufacturer’s recommendations and specifications.

All hangers and supports to be spaced to manufacturers specifications. All pipe hangers and brackets to be Hilti type with rubber anti-vibration insert. No PVC or polypropylene holderbats shall be permitted. Brackets shall be provided within 600mm from any change of direction or offset.

All copper pipes passing through walls shall be sleeved with Thermaflex or similar and equal approved. Sleeves shall protrude at least 50mm beyond each side of the wall. All copper pipes shall be free from cement, excess flux and solder. All underground copper pipes and fittings shall be wrapped with “Denso” tape.

2. Insulation
All hot water circulating pipework shall be insulated with canvas covered fiberglass preformed sections with a density of at least 50 kg/m3. All exposed hot water circulating pipework shall be insulated with preformed sections and covered with galvanised mild steel sheet metal cladding. Lap joints and
cladding seams shall be belled with the correct tools and machinery. All pipes 15mm diameter to 26mm diameter shall be insulated with 20mm thick Fiberglass. All pipes 32mm diameter to 50mm diameter shall be insulated with 25mm thick fiberglass.

3. Sanitaryware and Brassware
All sanitaryware and brassware to be as per the Architects/Clients specification. The contractor is to familiarize himself with the technical details pertaining to this range of Sanitaryware and brassware. All sanitaryware and brassware to be SABS and JASWIC approved. The contractor shall notify the Engineer should any of the attached specifications not meet any of the above approval authorities. All sanitaryware and brassware to be installed as shown on the Architects detailed and dimensioned bathroom layouts. All first fix plumbing and drainage to be installed to suit such layouts. The plumbing sub-contractor shall timeously familiarize himself with the Architect’s detailed bathroom and kitchen layouts, prior to the installation of first fix services. Any discrepancies must be reported to the Engineer prior to the installation of such first fix services.

4. Hot Water Cylinders
All hot water cylinders to be installed to the manufacturer’s specifications. All hot water cylinders to be vertical Kwikot Solar hot water cylinders. All hot water cylinders to be insulated with Saint Gobain Isover Geyser Insulation Pack consisting of geyser blanket and pipe insulation pack. The safety valves and expansion relief valves shall discharge to the outside oner the nearest gulley.

5. As-built drawings
The contractor shall keep on site a set of signed marked up updated as-built drawings. Such set of as-built drawings shall be updated regularly and made available to the Engineer at all times. The as-built set of drawings shall include all electrical wiring diagrams, details and schematics. The contractor shall forward the Engineer a full set of as-built drawings at least one month prior to practical completion of any area or section of the works. The Engineer shall provide 3 sets of as-built drawings (paper copies and in electronic format.)

6. Operating and Maintenance Manuals
The contractor shall provide 3 sets of operating and maintenance manuals (hard copies and in electronic format) prior to achieving practical completion of the project. The operating and maintenance manuals shall include the following:
- Description of the works or part there of, describing the operation and location of the plant
- Commissioning data, test certificates and certificates of compliance
- Maintenance schedules and description of all maintenance procedures
- Spare parts lists during and after the 12 month maintenance period
- Detailed instructions for the safe operation of all equipment.
- Names and addresses of the manufacturer and supplier of the equipment as well as of the contact persons.
- Certificates of all guarantees
- Detailed specific drawings of all plant and equipment
- Detailed specific wiring diagrams

7. Training and Operating Instructions
The contractor shall provide the necessary onsite training to the building maintenance personnel. The training shall include the following:
- Functioning of the installation and all its associated equipment
- Explanation and interpretation of the operating and maintenance manuals
- Equipment and component recognition
- Safety precautions
- Awareness of any relevant statutory requirements
- Logging of equipment operation, readings and settings

8. Testing of Pipes
All piping installed shall be hydraulically tested to at least 2 times the working pressure and not less than 1000 kPa. Refer to SABS 1200 for minimum and maximum test pressures. The contractor shall give the Engineer at least 3 days’ notice prior to the commencement of any test. All pipework shall be pressure tested as the works proceed and when the whole works are completed.

9. Sterilisation of Pipework
All piping shall be sterilised after passing the pressure test and prior to be taken into use. The sterilisation process shall be in accordance with SABS 10252 Part 1. The sterilisation of the system shall be witnessed by the Engineer. After sterilisation the pipework shall be flushed until the free chlorine levels are within the recommended range.
C3.7: Generic Specifications

The Specifications herein are Generic (In-house) Specifications prepared by the employer applicable to this contract. Three Specifications are included:

C3.7.1: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS
C3.7.2: ENVIRONMENTAL WORK INSTRUCTIONS
C3.7.4: ACSA HOARDING SPECIFICATIONS
C3.7.5: ACSA PERMIT REGULATIONS
C3.7.6: ACSA SPECIAL REQUIREMENTS
C3.7.7: LIST OF PENALTIES IMPOSED BY ACSA
C3.7.1: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

GROUND SUPPORT EQUIPMENT WORKSHOPS AT CAPE TOWN INTERNATIONAL AIRPORT

This part of the Generic Specifications contains comprehensive occupational health and safety specifications.

LIST OF ABBREVIATIONS

ACSA  Airports Company South Africa
AIA  Approved Inspection Authority
BoQ  Bill of Quantities
CC  Compensation Commissioner
CHS  Construction Health and Safety
CR  Construction Regulations (Gazette 10113 of 7/02/2014)
DMR  Driven Machinery Regulations
DoL  Department of Labour
GAR  General Administration Regulations
GSR  General Safety Regulations
HIRA  Hazard Identification Risk Assessment
H&S  Health and Safety
OH  Occupational Health
OHS  Occupational Health and Safety
OHSA  Occupational Health and Safety Act No. 85 of 1993 (as amended)
OHSS  Occupational Health and Safety Specification
PC  Principal Contractor
PPE  Personal Protective Equipment
ER  Engineer's Representative
RHCS  Regulations for Hazardous Chemical Substances
SACPCMP  South African Council for the Project and Construction Management Professions
SANS  South African National Standards (Authority)
SMME  Small, Micro, Medium Enterprise
SSHSS  Site Specific Health and Safety Specification

1. INTRODUCTION

1.1 Purpose of the Occupational Health and Safety Specification

The purpose of the OHSS is to assist Contractors to achieve compliance with the Occupational Health and Safety law, in order to reduce incidents and injuries. The OHSS will be implemented during the construction of this project or any construction activity that the Employer has control over.

The OHSS is a performance specification to ensure that the Employer and any bodies that enter into formal agreements with the Employer viz. Agents, Consultants and Contractors achieve an acceptable level of OHS performance. No advice, approval of any document required by the OHSS such as hazard identification and risk assessment action plan or any other form of communication from the Employer shall be construed as an acceptance by the Employer of any obligation that absolves the Contractor from achieving the required level of performance and compliance with legal requirements. Further, there is no acceptance of liability by the Employer which may result from the Contractor failing to comply with the OHSS, i.e. the Contractor remains responsible for achieving the required performance levels.
1.2 Implementation of the Occupational Health and Safety Specification

This SSHSS is intended for use with CONTRACT NO: CIA140/2017: GROUND SUPPORT EQUIPMENT WORKSHOPS AT CAPE TOWN INTERNATIONAL AIRPORT only and should not be used as part of any other contract document

This OHSS forms an integral part of the Contract, and Contractors are required to make it an integral part of their Contracts with Sub-Contractors and Suppliers. It will be disseminated by the Employer to persons responsible for the design of the infrastructure works, who will ensure that it is included in the Tender Document(s) issued to prospective Contractors. The prospective Contractors shall incorporate the requirements of the OHSS in their submission of tenders to the Employer.

This specification must be read in conjunction with the OHS Act No 85 of 1993 (as amended), the Construction Regulations as published in Government Regulation Notice No GNR 84 of 7 February 2014 as well as all regulations governed by the OHSA as amended.

The OHS Act Agreement in this document (Returnable Schedules) must be fully completed by the Contractor.

1.3 Key Role Players

Client Representatives:

Engineer:

OHS Agent:

2. STANDARD OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1 Scope

This OHSS covers the requirements for eliminating and mitigating incidents and injuries in all Employer controlled projects.

The scope also addresses legal compliance, hazard identification and risk control, promoting a health and safety culture amongst those working on ACSA projects and those affected by the activities taking place in and around them.

2.2 Interpretations

2.2.1 Application

The OHSS contains clauses that are generally applicable to building / construction and that impose pro-active controls associated with activities that impact on human health and safety as they relate to plant and machinery.

Compliance to the requirements of the OHSA, Construction regulations and General Safety Regulations is in addition to the requirements of the OHSS and is part of the Contractor’s responsibility. The Employer will through its Agents, as appointed, monitor that the Contractor
complies with the requirements of the OHSA and will not prescribe to the Contractor how such compliance is achieved.

Definitions

The definitions used will be those set out in the Government Regulation Notice No 84 of 7 February 2014 with the following addition:

ACSA: Airports Company South Africa

Occupational Health and Safety Agent (OHS Agent): A person appointed by the Client to carry out the duties of the Client in respect of Occupational Health and Safety on the Project in terms of Regulation 5 sub regs (5) and / or (6)

Hazard Identification and Risk Assessment and Risk Control:

Means a documented plan, which identifies hazards, assesses the risks and details the control measures and safe working procedures which are to be used to mitigate and control the occurrence of hazards and risks during construction or operation phases.

Health and Safety Management Plan:

Means a documented plan which addresses the hazards identified and include safe working procedures to mitigate, reduce or control the hazards identified.

Induction Training:

Means once off introductory training on general health and safety issues given to all employees before commencement of work on site. An abbreviated version should be given to all visitors.

Risk:

Means the probability or likelihood that a hazard can result in injury or damage.

Site:

Means the area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor, and approved for such use by the Engineer.

The Act:

Means, unless the context indicates otherwise, the Occupational Health and Safety Act, 1993 (ACT NO. 85 of 1993) and Regulations promulgated there under.

Contractor:

The Contractor terminology used in these specifications shall be deemed to cover Principle Contractor, Contractors and Sub-Contractors.

3. REQUIREMENTS AT TENDER STAGE

The Contractor shall make available the following with his completed tender:

A Preliminary Health and Safety Plan as described in Regulation 5 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2014 and this specification and will
be subject to approval by the Employer. No work may be started on site until this approval has been given. This will include a Hazard Identification and Risk Assessment appropriate to the project, expansion of Annexure D, and a declaration to the effect that he has the competence, completion of Occupational Health and Safety Questionnaire, and necessary resources to carry out the work safely in compliance with the OHSA and its Regulations (as amended), especially the Construction Regulations 2014.

Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor is not able to carry out the work under the contract safely in accordance with the Construction Regulations and may result in the tender being disqualified.

4. NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

Prior to the commencement of construction work but not later than 7 days after the award of the contract, 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:

- Any excavation work
- the use of explosives
- Demolition work
- Working at a height where there is a risk of falling.

The notification must be done in the form of the pro forma included under Returnable Schedules (The Occupational Health and Safety Act) of the tender document. See Annexure 2 of the CRs for a copy of the notification. Proof of submission to the DoL must be provided.

A copy of the notification form must be kept in the H&S file on site, available for inspection by inspectors, Employer, Engineer, employees and persons on site.

5. GUIDELINES FOR THE DEVELOPMENT OF A HEALTH & SAFETY PLAN

5.1 Background

In terms of the Construction Regulations [Regulation 5 (1) (a)] to the Occupational Health and Safety Act, No 85 of 1993, the Client is required to compile an Occupational Health and Safety specification for each of its projects and the Contractor, appointed by the Client in terms of Regulation 5 (1) (k), is required to prepare an Occupational Health and Safety Plan This plan has to be prepared in terms of Regulation 7 1 (a) as well as the this Occupational Health & Safety Specification. In terms of Regulation 5 (1 (f)), the Client and the Contractor are required to agree on the Occupational Health and Safety Plan which must be approved by the Client before any work may commence.

5.2 Framework for an Occupational Health and Safety Plan

5.2.1 Introduction

The Contractor has to demonstrate to the Client that he has a suitable and sufficiently documented Occupational Health and Safety Plan as well as the necessary competencies, experience and
resources to perform the construction work safely. The Contractor is required to submit, the following documentation for perusal and verification by the Client:

- Management Structure including an organogram – Tender Stage
- Quality Plan – Tender Stage
- Human Resources Plan – Tender Stage
- Registered Workplace Skills Plan
- Valid “Letter of good standing” from the Compensation Commissioner or licensed compensation insurer – Tender Stage
- Proof of induction and other training of employees
- Example copies of minutes of previous Occupational Health and Safety Committee meetings and copies of Incident Investigation Reports

5.2.2 Contents of an Occupational Health and Safety Plan

The Occupational Health and Safety Plan shall include the following:

5.2.2.1 Occupational Health and Safety Management Programme

- Management of Occupational Health and Safety risks
- Occupational Health and Safety structures and appointments
- Programme of Occupational Health and Safety inspections
- Occupational Health and Safety Representatives
- Occupational Health and Safety committee

5.2.2.2 Statement Regarding the Communication and Management of the Work

- Management structure and responsibilities
- Occupational Health and Safety objectives for the project and arrangements for monitoring and review of Occupational Health and Safety performance
- Arrangements for regular liaison between parties on site
- Consultation with the workforce
- The exchange of design information between the Client, Engineer, supervisors and subcontractors on site
- Handling design changes during the project
- Selection and control of subcontractors
- The exchange of Occupational Health and Safety information between all subcontractors
- Security
- Site induction and on-site training
- Facilities and first-aid
- The reporting and investigation of accidents and incidents
- The production and approval of risk assessments and method statements
- Site Occupational Health and Safety rules
- Fire and emergency procedures
- Reporting to the Client i.e. results of Occupational Health and Safety inspections.
- Incident investigations and committee meetings
- Reporting of incidents to the Department of Labour and Compensation Commissioner where appropriate

6. APPOINTMENT OF SAFETY PERSONNEL
6.1 Construction Supervisor

In terms of Section 16 of the Act, the Chief Executive Officer of the Contractor may delegate, in writing, part or all of his powers to a suitable person on the site.

The Contractor shall appoint a full-time Construction Manager, in writing, in terms of Section 8.1 of the Regulations 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 manager where justified by the scope and complexity of the works.

6.2 Construction safety officer

In terms of Section 8 (5) of the Regulations the Contractor shall appoint in writing a full-time or part-time Construction Health and Safety Officer. The decision as to whether the CHSO shall be part or full time is to be made by the Client.

The Safety Officer shall have the necessary competence and resources to perform his duties diligently. He must be registered as a Construction Health and Safety officer with the SACPCMP or in possession of a letter confirming that application has been made for registration.

Traffic safety on the airport will be the responsibility of the Traffic Safety Officer.

Provision will be made in the Bill of Quantities to cover the cost of a dedicated construction safety officer appointed after award of the contract.

6.3 Health and safety representatives

In terms of Sections 17 and 18 of the Act (OHSA 1993) the Contractor shall appoint, in writing, a health and safety representative whenever he has more than 20 employees in his employ on 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 50 employees.

The function of the 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.

6.4 Health and safety committee

In terms of Sections 17, 18 and 19 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’s representative and any Department of Labour inspector, and to make recommendations regarding health and safety to the Contractor and to keep record of meetings, recommendations and reports made by the committee.

6.5 Competent persons

In accordance with the Construction Regulations the Contractor shall appoint, in writing, competent persons responsible for supervising construction work for the following work situations that may be expected on the site of the works, as applicable to the project.

- Risk assessment (Regulation 9);
- Fall protection (Regulation 10);
- Excavation work (Regulation 13);
- Demolition work (Regulation 14);
- Bulk Mixing Plant operations (Regulation 20);
- Explosive powered tools (Regulation 21);
- Construction vehicle and mobile plant (Regulation 23);
- Use of temporary storage of flammable liquids on construction site (Regulation 25);
- Housekeeping on construction sites (Regulation 27);
- Stacking and storage on construction sites (Regulation 28);
- Fire precautions on construction sites (Regulation 29);
- Construction employee’s welfare facilities (Regulation 30).
- In addition a competent person must be appointed for the control of asphalt and concrete surfacing work.

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.

CVs of all appointed persons should be submitted together with proof of the appointment.

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 OHS Act and Regulations.

7. PROJECT / SITE SPECIFIC REQUIREMENTS

A list of activities and considerations that have been identified for the project and the construction site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor is given in Annexure 2. This list is not to be considered as inclusive and other items must be added as required.

In addition, the following risks should be taken into account. The following is a generic list of a Risk Assessment and Site specific health and safety specifications prepared by the Employer in terms of Construction Regulations 5(1)(a) and 5(1)(f):

- Clearing and grubbing of the area/site
- Site establishment including:
  - Office/s
- Secure/safe storage for materials, plant and equipment
- Ablutions
- Sheltered eating area
- Maintenance workshop
- Vehicle access to the site
- Temporary fuel storage, where applicable

- Dealing with existing structures – possibility of asbestos
- Location of existing services e.g. gas, telecommunications, electrical supply and similar
- Installation and maintenance of temporary construction electrical supply, lighting and equipment
- Adjacent land uses/surrounding property exposures
- Boundary and access control/public liability exposures (NB: the Contractor is also responsible for the OH&S of non-employees affected by his work activities.)
- Health risks arising from neighbouring as well as own activities and from the environment e.g. threats by dogs, bees, snakes and lightning
- Exposure to noise
- Exposure to vibration
- Protection against dehydration and heat exhaustion
- Protection from wet and cold conditions
- Dealing with HIV/Aids and other diseases such as silicosis or asbestos, where applicable
- Use of portable electrical equipment including
  - Angle grinder
  - Electrical drilling machine
  - Circular saw
  - Generator
- Excavations including
  - Ground/soil conditions
  - Trenching
  - Shoring
  - Drainage of trenches
- Welding including
  - Arc welding
  - Gas welding
  - Flame cutting
  - Use of LP gas torches and appliances
- Loading and off-loading of trucks
- Aggregate/sand and other materials delivery
- Manual and mechanical handling
- Lifting and lowering operations
- Driving and operation of construction vehicles and mobile plant including
  - Trenching machine
  - Excavator
  - Bomag roller
  - Milling machine
  - Paving machine
  - Plate compactor
  - Front end loader
  - Mobile cranes and the ancillary lifting tackle
  - Grader
  - Parking of vehicles and mobile plant
  - Towing of vehicles and mobile plant
- Concrete/asphalt saw

- Use and storage of flammable liquids and other hazardous substances e.g. petrol, diesel, cement, asphalt, bituminous materials and similar
- Layering and bedding
- Installation of pipes in trenches
- Pressure testing of pipelines
- Backfilling of trenches
- Protection against flooding
- Gabion work
- Use of explosives
- Protection from overhead power lines (high and low)
- Work at an operational airport
- Work adjacent to or in proximity of railway lines
- Work adjacent to or in proximity of traffic including aircraft, ground handling equipment, fire trucks
- Working at heights
- Working in confined spaces – tunnelling
- Formwork and support work (temporary works) including scaffolding
- Demolition work, where applicable
- Bulk mixing plant, where applicable
- Environmental impacts such as pollution of water, air or soil
- Working at night

Emergency Procedures

The Principal Contractor shall submit a detailed Emergency Procedure for approval by the Client prior to commencement on site. The procedure shall detail the response plan including the following key elements:

- List of key competent personnel
- Details of emergency services
- Actions or steps to be taken in the event of the specific types of emergencies
- Information on hazardous material/situations.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, bomb threats, major incidents/accidents, civil unrest. etc. The Principal Contractor shall advise the Client, Agent, Engineer and all relevant authorities forthwith, of any emergencies, together with a record of action taken. This shall be confirmed in writing as soon as possible after the incident. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and available to site personnel. These procedures shall form part of the Health and Safety Plan.

First Aid Boxes and First Aid Equipment

The Principal Contractor and all Contractors shall appoint in writing First Aider(s). If not already accredited, the appointed First Aider(s) are to be sent for accredited first aid training. Valid certificates are to be kept on site. The Principal Contractor shall provide an on-site First Aid Station with first aid facilities, including first aid boxes containing, at least, the requirements of the Annexure to Section 3 of the General Safety Regulations. All Contractors with more than 5 employees shall supply their own first aid box. Contractors with more than 10 employees shall have a trained and certified First Aider on site at all times.
**Personal Protective Equipment (PPE) and Clothing**

The Principal Contractor shall ensure that all workers are issued with, free of charge, and shall wear hard hats, protective footwear and overalls as well as any other necessary PPE as set out in Regulation 2.3 of the General Safety Regulations and required by their duties. Contractors are encouraged to provide reflective vests for all their staff.

The Principal Contractor and all Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times. This shall include necessary safety gear for visitors. The Principal Contractor shall clearly outline procedures to be taken when PPE or Clothing is:

- Lost or stolen
- Worn out or damaged
- Issued to temporary labour or staff.

The above procedure applies to Contractors and their Sub-contractors, as they are all Employers in their own right.

**Occupational Health and Safety Signage**

The Contractor shall provide adequate on-site OHS signage. This should include but is not limited to: ‘no unauthorised entry’, ‘report to site office’, ‘site office’, ‘beware of overhead work’, ‘hard hat area’. Signage shall be posted up at all entrances to site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, scaffolding, and other potential risk areas/operations. These signs shall be in accordance with the requirements of the General Safety Regulations as amended.

**Medical Examinations.**

All Contractors must ensure that all employees have a valid medical certificate issued in terms of Regulation 7.8. Medicals should be done before the employee commences work and at yearly intervals thereafter. It is advisable that exit medicals are carried out when an employee leaves. Note that examinations must be done by an Occupational Health Practitioner and NOT by a General Practitioner.

**Night Work**

Work at night must be carried out under safe conditions and the work area must be adequately lit by flood lights or other suitable lights. The use of reflective PPE in good condition is mandatory. Workers must be specifically trained in working at night and the dangers of moving machinery emphasized. The OHS Officer, if not on site, must be on call during these periods.

8. **HEALTH AND SAFETY FILE**

The Contractor shall in terms of Construction Regulation 7 (b) maintain a Health and Safety File on site at all times. The Health and Safety File is a file or other permanent record containing information on aspects of the construction project - which will be necessary to ensure the health and safety of any person who may be affected by the construction work.

The Contractor shall appoint a suitably qualified person to prepare the Health and Safety File and to keep it up to date for the duration of the contract. The Health and Safety file shall include at least the following information:

- All Documents as required by the Act and Regulations
• All reports of inspections and audits
• All non-conformity reports
• All working drawings, calculations and design where applicable
• Detailed list of sub-contractors with contact details
• List of all hazardous materials used and stored on site with Data Sheets and Materials Hazard Data sheets
• All Hazard Identification and Risk Assessments carried out for the project.
• All Health and Safety Plans for the project.
• All method statements
• Minutes of all relevant meetings
• Incident records, including investigations and results
• Record of all appointments under the Regulations

Annexure B is a list of the records to be kept on site.

The Health & Safety File shall be handed over to the Client on completion of the contract. It must contain all the documentation as set out above, or as instructed, as well as any handed to the Principle Contractor by any subcontractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project. All information must be submitted in electronic format.

9. 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).

Risk is a measure of the likelihood that the harm from a particular hazard will be realised, taking into account the possible severity of the harm. Harm to people includes death, injury (permanent or temporary), physical or mental health or any combination thereof. Risk management in health and safety includes the identification of hazards, assessing risks, taking action to eliminate or reduce the risk, monitoring the effectiveness and performing regular reviews of the entire process. The Contractor shall compile method statements to address or handle the following:

• Hazards particulars to the contract
• Identify what could go wrong and how
• Identify the likelihood of this happening
• Identify the persons at risk
• Identify the extent of possible harm
• Eliminating or reducing this risk
• A monitoring plan
• A review plan

Contractors must ensure that all subcontractors conduct risk assessments for their scope of work as well. All risk assessments shall be updated and re-evaluated with any extra works or with any change to the scope of the works.

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.

10. ARRANGEMENTS FOR MONITORING AND REVIEW

The Client and/or Agent will conduct a Monthly, or at greater frequency, H&S audit to audit compliance with Construction Regulations 5.1 (n) and (o) to ensure that the Contractor has implemented and is maintaining the agreed and approved OH&S Plan. Annexure C will be used as format when conducting the audit.

The Client reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

A representative of the Contractor must accompany the Client on all audits and inspections and may conduct his own audit/inspection at the same time. Each party will, however, take responsibility for the results of his own audit/inspection results.

11. MEASUREMENT AND PAYMENT

Measurement and payment items is described under Item B12.08.
### ANNEXURE B

**RECORDS TO BE KEPT ON SITE**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>CR</th>
<th>RECORD TO BE KEPT</th>
<th>RESPONSIBLE PERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4(1)</td>
<td>Notification to Provincial Director – Annexure 2 Available on site</td>
<td>Contractor</td>
</tr>
<tr>
<td>2.</td>
<td>5(1)</td>
<td>Copy of Principal Contractor’s Health &amp; Safety Plan Available on request</td>
<td>Client (Consultant)</td>
</tr>
<tr>
<td>3.</td>
<td>7(c)(vi)</td>
<td>Copy of Principal Contractor’s Health &amp; Safety Plan As well as each Contractor’s Health &amp; Safety Plan Available on request</td>
<td>Principal Contractor</td>
</tr>
<tr>
<td>4.</td>
<td>7(1)(b)</td>
<td>Health &amp; Safety File opened and kept on site (including all documentation-required i.t.o. OHSA &amp; Regulations Available on request</td>
<td>Contractor</td>
</tr>
<tr>
<td>5.</td>
<td>7(1)(e)</td>
<td>Consolidated Health &amp; Safety File handed to Client on completion of Construction work. To include all documentation required i.t.o. OHSA &amp; Regulations and records of all drawings, designs, materials used and similar information on the structure.</td>
<td>Contractor</td>
</tr>
<tr>
<td>6.</td>
<td>7(1)(f)</td>
<td>Comprehensive and Updated List of all Contractors on site, the agreements between the parties and the work being done Included in Health &amp; Safety file and available on request</td>
<td>Contractor</td>
</tr>
<tr>
<td>7.</td>
<td>7(7)</td>
<td>Keep record on the Health &amp; safety File of the input by Construction Safety Officer [CR (8.5)] at design stage or on the Health &amp; Safety Plan</td>
<td>Contractor</td>
</tr>
<tr>
<td>8.</td>
<td>9(1)</td>
<td>Risk Assessment Available on site for inspection</td>
<td>Contractor</td>
</tr>
<tr>
<td>9.</td>
<td>9(3)</td>
<td>Proof of Health &amp; Safety Induction Training</td>
<td>Every Employee on site</td>
</tr>
<tr>
<td>10.</td>
<td>10(3)</td>
<td>Construction Manager [CR 8 (1)] has latest updated version of Fall Protection Plan [CR 10 (1)]</td>
<td>Contractor</td>
</tr>
<tr>
<td>11.</td>
<td>6(1)(d)</td>
<td>Inform Contractor in writing of dangers and hazards relating to construction work</td>
<td>Designer of Structure</td>
</tr>
<tr>
<td>12.</td>
<td>11(c)</td>
<td>All drawings pertaining to the design of structure On site available for inspection</td>
<td>Contractor</td>
</tr>
<tr>
<td>13.</td>
<td>11(2)(a)</td>
<td>Record of inspection of the structure [First 2 years – once every 6 months, thereafter yearly]</td>
<td>Owner of Structure</td>
</tr>
<tr>
<td>14.</td>
<td>11(2)(d)</td>
<td>Maintenance records – safety of structure Available on request</td>
<td>Owner of Structure</td>
</tr>
<tr>
<td>15.</td>
<td>12(1)(c)</td>
<td>Drawings pertaining to the design of temporary structure Kept on site, available on request</td>
<td>Contractor</td>
</tr>
<tr>
<td>16.</td>
<td>13(2)(i)</td>
<td>Record of excavation inspection On site available on request</td>
<td>Contractor</td>
</tr>
<tr>
<td>17.</td>
<td>17(11)</td>
<td>Suspended Platform inspection and performance test records Kept on site available on request</td>
<td>Contractor</td>
</tr>
<tr>
<td>18.</td>
<td>19(8)(c)</td>
<td>Material Hoist daily inspection entered and signed in record book kept on the premises</td>
<td>Contractor</td>
</tr>
<tr>
<td>19.</td>
<td>19(8)(d)</td>
<td>Maintenance records for Material Hoist Available on site</td>
<td>Contractor</td>
</tr>
<tr>
<td>20.</td>
<td>20(8)</td>
<td>Records of Batch Plant maintenance and repairs On site available for inspection</td>
<td>Contractor</td>
</tr>
<tr>
<td>21.</td>
<td>21(2)(g)(ii)</td>
<td>Issuing and collection of cartridges and nails or studs (Explosive Powered Tools) recorded in register – recipient signed for receipt as well as return</td>
<td>Contractor</td>
</tr>
<tr>
<td>22.</td>
<td>23(1)(k)</td>
<td>Findings of daily inspections (prior to use) of Construction Vehicles and Mobile Plant</td>
<td>Contractor</td>
</tr>
<tr>
<td>23.</td>
<td></td>
<td>Copies of all appointments made in regard to safety supervisors and inspectors</td>
<td></td>
</tr>
</tbody>
</table>
# ANNEXURE C

## OCCUPATIONAL HEALTH AND SAFETY
### AUDIT SYSTEM

## ADMINISTRATIVE & LEGAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirements</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notice of carrying out Construction work</td>
<td>Department of Labour notified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Copy of Notice available on Site</td>
<td></td>
</tr>
<tr>
<td>Copy of OH&amp;S Act (Act 85 of 1993)</td>
<td>Updated copy of Act &amp; Regulations on site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Readily available for perusal by employees</td>
<td></td>
</tr>
<tr>
<td>Registration with Compens. Insurer</td>
<td>Written proof of registration / Letter of good standing available on Site</td>
<td></td>
</tr>
<tr>
<td>1.1.1 OH&amp;S Specification &amp; Plan</td>
<td>OH&amp;S Specification received from Client</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OH&amp;S plan developed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Updated regularly</td>
<td></td>
</tr>
<tr>
<td>1.1.2 Hazard Identification &amp; Risk Assessment</td>
<td>Hazard Identification carried out/Recorded</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk Assessment and Plan drawn up/Updated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employees/Subcontractors informed/trained</td>
<td></td>
</tr>
<tr>
<td>Assigned duties (Managers)</td>
<td>Responsibility of complying with the OH&amp;S Act assigned to other person/s by CEO.</td>
<td></td>
</tr>
<tr>
<td>Designation of Person Responsible on Site</td>
<td>Competent person appointed in writing as Construction Supervisor</td>
<td></td>
</tr>
<tr>
<td>Designation of Subordinate Person</td>
<td>Competent person appointed in writing as Sub-ordinate Construction Supervisor</td>
<td></td>
</tr>
<tr>
<td>Designation of Occupational Health &amp; Safety Representatives</td>
<td>More than 20 employees - one OH&amp;S Representative, one additional OH&amp;S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful OH&amp;S Rep. reports. Reports actioned by Management.</td>
<td></td>
</tr>
<tr>
<td>Agreement with Mandataries (Subcontractors)</td>
<td>Written agreement with Subcontractors. List of Subcontractors displayed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proof of Registration with Compensation Insurer/Letter of Good Standing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction Work Supervisor designated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written arrangements concerning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OH&amp;S Reps &amp; OH&amp;S Committee</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written arrangements regarding First Aid</td>
<td></td>
</tr>
<tr>
<td><strong>Subject</strong></td>
<td><strong>Requirements</strong></td>
<td><strong>Yes/No</strong></td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
</tbody>
</table>
| Fall Prevention & Protection | Competent person appointed to draw up and supervise the Fall Protection Plan  
Proof of appointees competence available on Site  
Risk Assessment carried out for work at heights  
Fall Protection Plan drawn up/updated  
Available on Site |            |
| 1.1.3 Excavations | Competent person/s appointed in writing to supervise and inspect excavation work  
Written Proof of Competence of above appointee/s available on Site  
Risk Assessment carried out  
Inspected:  
- before every shift  
- after any blasting  
- after an unexpected fall of ground  
- after any substantial damage to the shoring  
- after rain. Inspections register kept  
Method statement developed where explosives will be/ are used |            |
| 1.1.4 Demolition Work | Competent person/s appointed in writing to supervise and control Demolition work  
Written Proof of Competence of above appointee/s available on Site  
Risk Assessment carried out  
Engineering survey and Method Statement available on Site  
Inspections to prevent premature collapse carried out by competent person before each shift. Inspection register kept |            |
| 1.1.5 Materials Hoist | Competent person appointed in writing to inspect the Material Hoist  
Written Proof of Competence of above appointee available on Site.  
Materials Hoist to be inspected weekly by a competent person. Inspections register kept. |            |
| 1.1.6 Caissons & Coffer dams | Competent person appointed in writing to supervise, control & inspect the construction, installation/dismantling of caissons/coffer dams  
Written Proof of Competence of above appointee available on Site  
Risk Assessment carried out To be inspected daily by a competent person. Inspections register kept |            |
<p>| 1.1.7 Explosive Powered Tools | Competent person appointed to control the issue of the Explosive Powered Tools &amp; cartridges and the service, maintenance and cleaning. Register kept of above Empty cartridge cases/nails/fixing bolts returns recorded Cleaned daily after use |            |
| 1.1.8 Batch Plants | Competent person appointed to control the operation of the Batch Plant and the service, maintenance and cleaning. Register kept of above |            |</p>
<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirements</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.9 Tunnelling</td>
<td>Complying with Mines Health &amp; Safety Act (29 of 1996) Risk Assessment carried out</td>
<td></td>
</tr>
<tr>
<td>1.1.10 Cranes &amp; Lifting Machines Equipment</td>
<td>Competent person appointed in writing to inspect Cranes, Lifting Machines &amp; Equipment Written Proof of Competence of above appointee available on Site. Cranes &amp; Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection: - All cranes - daily by operator - Tower Crane/s - after erection/6monthly - Other cranes - annually by comp. person - Lifting tackle(slings/ropes/chain slings etc.) - 3 monthly Risk Assessment carried out</td>
<td></td>
</tr>
<tr>
<td>1.1.11 Water Environments</td>
<td>Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an Approved Inspection Authority of equipment used Written Proof of Competence of above appointee available on Site Proof of registration of all divers present on site available Risk Assessment carried out Diving Manual produced. Available on Site Record of Voice Communications kept Diving Operations record kept Each Diver keeps a personal logbook. Entries countersigned by the Diving Supervisor Decompression tables available on Site Records of any Decompression illness kept Certificate of Manufacture of any Compression Chamber or Diving Bell in use available on Site</td>
<td></td>
</tr>
<tr>
<td>Designation of Stacking &amp; Storage Supervisor</td>
<td>Competent Person/s with specific knowledge and experience designated to supervise all Stacking &amp; Storage Written Proof of Competence of above appointee available on Site</td>
<td></td>
</tr>
<tr>
<td>1.1.12 Designation of a Person to Co-ordinate Emergency Planning</td>
<td>Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: Drilled/Practiced Plan &amp; Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on register. Inspected weekly. Inspection Register kept Serviced annually</td>
<td></td>
</tr>
<tr>
<td>1.1.13 And Fire Protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Requirements</td>
<td>Yes/No</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
</tbody>
</table>
| First Aid                       | Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed)  
First Aid freely available  
Equipment as per the list in the OH&S Act.  
One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed)  
List of First Aiders and Certificates  
Name of person/s in charge of First Aid box/es displayed.  
Location of F/Aid box/es clearly indicated.  
Signs instructing employees to report all Injuries/illness including first aid injuries |        |
| *Control of Storage & Usage of HCS | PSE Risk Assessment carried out  
Items of PSE prescribed/use enforced  
Records of Issue kept  
Undertaking by Employee to use/wear PSE  
Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of HCS  
Written Proof of Competence of above appointee available on Site  
Risk Assessment carried out  
Register of HCS kept/used on Site |        |
| Vessels under Pressure (VUP)    | Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections & testing of VUP’s  
Written Proof of Competence of above appointee available on Site  
Risk Assessment carried out  
Certificates of Manufacture available on Site  
Register of VUP’s on Site  
Inspections & Testing by Approved Inspection Authority (AIA): after installation/re-erection or repairs every 36 months.  
Register/Log kept of inspections, tests. Modifications & repair |        |
| Construction Vehicles & Earth Moving Equipment | Operators/Drivers appointed to:  
Carry out a daily inspection prior to use  
Drive the vehicle/plant that he/she is competent to operate/drive  
Written Proof of Competence of above appointee available on Site  
Record of Daily inspections kept |        |
| 1.1.14 Ramps                    | Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept.                                                                                       |        |
## ANNEXURE D
### HAZARDOUS TASK IDENTIFICATION

(The list given is not inclusive and other hazardous tasks may be identified as the construction progresses)

<table>
<thead>
<tr>
<th>MAIN TASK</th>
<th>SUB TASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCOMMODATION OF TRAFFIC</td>
<td>Clashes between Airport Fire and Safety traffic and construction work</td>
</tr>
<tr>
<td></td>
<td>Dust (from jet blast)</td>
</tr>
<tr>
<td></td>
<td>Traffic speed</td>
</tr>
<tr>
<td></td>
<td>Provision of safety equipment</td>
</tr>
<tr>
<td></td>
<td>Working next to air traffic (noise and jet blast)</td>
</tr>
<tr>
<td></td>
<td>Erection of signage and barricades</td>
</tr>
<tr>
<td>EARTHMOVING AND LAYERWORKS</td>
<td>Use of tip trucks and other transportation</td>
</tr>
<tr>
<td></td>
<td>Working at spoil site</td>
</tr>
<tr>
<td>EXCAVATING</td>
<td>By manual labour</td>
</tr>
<tr>
<td></td>
<td>By excavating equipment e.g. Milling Machine</td>
</tr>
<tr>
<td></td>
<td>Excavating duct slots by electrical/pneumatic breakers</td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td>Working with generators and lighting</td>
</tr>
<tr>
<td></td>
<td>Temporary installations</td>
</tr>
<tr>
<td></td>
<td>Dealing with services provided by others</td>
</tr>
<tr>
<td>FIRE</td>
<td>Use and placement of fire extinguishers</td>
</tr>
<tr>
<td>Category</td>
<td>Task</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>MISCHELLENEOUS</td>
<td>Site Establishment</td>
</tr>
<tr>
<td></td>
<td>Housekeeping</td>
</tr>
<tr>
<td></td>
<td>General storage</td>
</tr>
<tr>
<td></td>
<td>Movement of equipment</td>
</tr>
<tr>
<td></td>
<td>Use of personal transport</td>
</tr>
<tr>
<td>SURFACING</td>
<td>Asphalt batch plant</td>
</tr>
<tr>
<td></td>
<td>Use, storage and handling of bituminous products</td>
</tr>
<tr>
<td></td>
<td>Distributors</td>
</tr>
<tr>
<td></td>
<td>Spraying by hand</td>
</tr>
<tr>
<td></td>
<td>Use of paving machines</td>
</tr>
<tr>
<td></td>
<td>Use of rollers</td>
</tr>
<tr>
<td></td>
<td>Use of heating apparatus</td>
</tr>
<tr>
<td></td>
<td>Use of nuclear gauge</td>
</tr>
<tr>
<td>WORKSHOPS</td>
<td>Use of small electrical tools</td>
</tr>
<tr>
<td></td>
<td>Gas and Flame Cutting</td>
</tr>
<tr>
<td></td>
<td>Use of general workshop equipment</td>
</tr>
<tr>
<td></td>
<td>Tyre repair</td>
</tr>
</tbody>
</table>
Use of jacking and lifting apparatus

<table>
<thead>
<tr>
<th>HAZARDOUS MATERIALS</th>
<th>Petrol</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be added to as required</td>
<td>Diesel</td>
</tr>
<tr>
<td>Materials safety date sheets as required</td>
<td>Lubricants</td>
</tr>
<tr>
<td></td>
<td>Cement and cement bags</td>
</tr>
<tr>
<td></td>
<td>Road lime and lime bags</td>
</tr>
<tr>
<td></td>
<td>Flammable materials</td>
</tr>
<tr>
<td></td>
<td>Gas bottles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANY OTHER DANGEROUS ACTIVITIES IDENTIFIED BY THE CONTRACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Night work</td>
</tr>
<tr>
<td>Use of lighting plant and/ other electrical apparatus</td>
</tr>
<tr>
<td>To be added by the contractor at tender stage</td>
</tr>
</tbody>
</table>
## DESIGN HAZARD IDENTIFICATION AND RISK ASSESSMENT

**Risk Rating Multiplier:** Low = 1; Medium = 2; High = 3

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Med</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Raw Design Risk - Typical behaviour given the design / factors present</td>
<td>2</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Residual Risk - The extra factors noted that must be in place to reduce the risk</td>
<td>3</td>
<td>8</td>
<td>27</td>
</tr>
</tbody>
</table>

Low Risk - Does not mean that the activity is safe, or that potential injuries and / or fatalities are eliminated.

Key Risks will be assessed and reported on in the Site Specific H&S Specification.

New tasks require assessment as the project progresses.

- Method Statements, risk analyses and safe work procedures to be revised on an annual basis.

<table>
<thead>
<tr>
<th>GAR</th>
<th>General Administration Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSR</td>
<td>General Safety Regulations</td>
</tr>
<tr>
<td>SANS</td>
<td>South African National Standards</td>
</tr>
<tr>
<td>SABS</td>
<td>South African Bureau of Standards</td>
</tr>
<tr>
<td>NIHL</td>
<td>Noise Induced Hearing Loss</td>
</tr>
<tr>
<td>GMR</td>
<td>General Machinery Regulations</td>
</tr>
<tr>
<td>OHS Act</td>
<td>Occupational Health and Safety Act and Regulations 85 of 1993</td>
</tr>
<tr>
<td>SWP</td>
<td>Safe Work Procedures</td>
</tr>
<tr>
<td>MS</td>
<td>Method Statements</td>
</tr>
<tr>
<td>HCS</td>
<td>Hazardous Chemical Substances</td>
</tr>
<tr>
<td>PrDP</td>
<td>Professional Driving Permit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baseline Raw Design Risk</th>
<th>Residual Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLTO / LEGISLATION REF</td>
<td>Design aspect present</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>1202</td>
<td>Services</td>
</tr>
<tr>
<td>1302</td>
<td>Construction plant workshops and camps to be established and maintained by the contractor for the duration</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1402</td>
<td>Testing will be by commercial laboratory</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1404</td>
<td>Electricity, Water, Sanitation</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1502(a)</td>
<td>Traffic Safety</td>
</tr>
<tr>
<td>1502(e)(h)</td>
<td>Are there specific concerns regarding public access?</td>
</tr>
<tr>
<td>1502(i)</td>
<td>Traffic Safety Officer (TSO) will be appointed?</td>
</tr>
<tr>
<td>1503(a)</td>
<td>Construction will be under traffic?</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
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<tr>
<td>1511</td>
<td>Dust from vehicles on the road</td>
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<td>1700</td>
<td>Clearing and Grubbing</td>
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<tr>
<td>2100</td>
<td>Drains</td>
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<tr>
<td>2100</td>
<td>Sub soil drains</td>
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<tr>
<td>2200</td>
<td>Prefabricated culverts</td>
</tr>
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<tr>
<td>2300</td>
<td>Concrete kerbing, concrete channeling, chutes and down pipes and concrete linings for open drains</td>
</tr>
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</table>

**SERIES 3000 - EARTHWORKS AND PAVEMENT LAYERS OF GRAVEL OR CRUSHED STONE**

| 3200 | Stock piling | Yes | Stock piling will take place at the different sites as required | 3 | 3 | 2 | 18 | Permission from the engineer for the disposal of materials All stock pile areas are to be fenced and are to comply with the relevant safety regulations | 3 | 3 | 1 | 9 |

| 3300 | Haulage of material in tipper trucks | Yes | Material will be hauled on the entire project from a commercial source and borrow pits | 3 | 3 | 2 | 18 | Dust management, suppression, daily registers and competent operators Method statements and SWP required | 3 | 3 | 1 | 9 |

<p>| 3400 | Wearing course | Yes | Tipping, spreading and compaction use of heavy machinery | 3 | 2 | 2 | 12 | Alternative safe pedestrian passage is required where pavements are under construction Method statements and SWP required | 3 | 2 | 1 | 6 |</p>
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<td>C3</td>
<td>C3.7</td>
<td>Part C3: Scope of works</td>
<td>Generic Specifications</td>
<td>Occupational Health and Safety Specification</td>
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<td>SERIES 4000 - ASPHALT PAVEMENTS AND SEALS</td>
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<tr>
<td>3800</td>
<td>Milling out of existing asphalt</td>
<td>yes</td>
<td>Use of milling machine, tipper trucks</td>
<td>Medical surveillance, liver function testing, increased changes in PPE to ensure visibility and limit saturation of chemicals. First aid treatment for burns, level 3 first aiders, increased arrangements for emergencies. Storage areas to be controlled for temporary storage, dust suppression during mixing of materials and sawing. Noise levels to be checked Competent staff to operate</td>
</tr>
<tr>
<td>3900</td>
<td>Patching and edge break repair</td>
<td>yes</td>
<td>Use of saw, minor excavation, placing and compaction of hot asphalt</td>
<td>Medical surveillance, liver function testing, increased changes in PPE to ensure visibility and limit saturation of chemicals. First aid treatment for burns, level 3 first aiders, increased arrangements for emergencies. Storage areas to be controlled for temporary storage, dust suppression during mixing of materials and sawing. Noise levels to be checked Competent staff to operate</td>
</tr>
<tr>
<td>Code</td>
<td>Type</td>
<td>Description</td>
<td>Key Points</td>
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<tr>
<td>4200</td>
<td>6</td>
<td>Placing of asphalt paving, including prime and tack coats</td>
<td>Yes</td>
<td>Provision of MSDSs, bunded areas for storage on site, first aid cover, firefighting equipment, regular disposal from site</td>
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</table>

**SERIES 5000 - ANCILLARY WORKS**

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<thead>
<tr>
<th>Code</th>
<th>Type</th>
<th>Description</th>
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<tr>
<td>5600/5700</td>
<td>6</td>
<td>Road signs &amp; markings</td>
<td>Yes</td>
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<td>Series</td>
<td>Group</td>
<td>Subgroup</td>
<td>Yes/No</td>
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<tr>
<td>6100</td>
<td>Foundations</td>
<td>Yes</td>
<td>Transportation of material to site Excavations, Structures and culverts</td>
</tr>
<tr>
<td>6200</td>
<td>Formwork</td>
<td>Yes</td>
<td>Manual construction of formwork Shutter oil Manual labour</td>
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<tr>
<td>6300</td>
<td>Steel reinforcement</td>
<td>Yes</td>
<td>Steel fixing</td>
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<tr>
<td>6400</td>
<td>Concrete</td>
<td>Yes</td>
<td>In extension to storm water structures</td>
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<tr>
<td></td>
<td>Demolitions</td>
<td>Yes</td>
<td>Demolish existing structures</td>
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</table>

Part C3: Scope of works

Generic Specifications

Occupational Health and Safety Specification
<table>
<thead>
<tr>
<th>Series 7000 - Sundry Structures</th>
<th>7100</th>
<th>Repair of Concrete Pavements</th>
<th>Yes</th>
<th>Clean joints and reseal, use of joint sealer</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>27</th>
<th>Method Statements, SWP, PPE, Specialized personnel. SDS for sealer</th>
<th>3</th>
<th>3</th>
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<th>9</th>
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</table>

**OHS Specifications**

<table>
<thead>
<tr>
<th>Employment of labour</th>
<th>Yes</th>
<th>Local labour as well as SMME's will be used</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>27</th>
<th>All labour to have a medical. SMME's to produce H&amp;S Plans before commencement of work on site</th>
<th>2</th>
<th>3</th>
<th>2</th>
<th>12</th>
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</thead>
<tbody>
<tr>
<td>Silica regs</td>
<td>All materials will be considered containing Silica</td>
<td>Yes</td>
<td>Risk Assessments, medical surveillance and chest x-rays for all workers and operators</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>27</td>
<td>PC is to ensure compliance and medical surveillance is adequately managed</td>
<td>3</td>
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<tr>
<td>Transportation of persons and material</td>
<td>Yes</td>
<td>Vehicles including LDVs and Tippers will be used on entire project</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>27</td>
<td>All operators to have a valid licence,PrDP (P.G.D.) Certificate of competence and a valid medical certificate issued by an Occupational Health PractitionerConstruction Vehicles to have amber flashing lights, reverse warning hooters and daily check checks</td>
<td>3</td>
<td>3</td>
<td>2</td>
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<td>Hazardous Chemicals</td>
<td>Yes</td>
<td>HCS's will be used during the project</td>
<td>3 3 3</td>
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<td>Medicals are required for persons using HCS. Medical certificate issued by an Occupational Health Practitioner. Method statements and SWP are to be in place.</td>
<td>3 3 2 18</td>
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<td>Lifting Equipment</td>
<td>Yes</td>
<td>Lifting equipment will be used on the project</td>
<td>3 3 3</td>
<td>27</td>
<td>All lifting equipment is to be on a register. All equipment to be tested according to DMR 18.</td>
<td>2 3 1 6</td>
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<td>Fire Fighting Equipment</td>
<td>Yes</td>
<td>Firefighting equipment will be used on site</td>
<td>2 3 2</td>
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<td>All firefighting equipment to be recorded and tested according to SANS 1475.</td>
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<td>First Aid Equipment</td>
<td>Yes</td>
<td>First Aid equipment will be present on site</td>
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<td>All first aid equipment to be recorded and checked according to OHS Act GSR 3. Injuries resulting from the type of operations are to be taken into consideration for the provision of first aid equipment.</td>
<td>3 3 1 9</td>
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<td>Flammable materials</td>
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<td>35% and 65% Spray grade emulsions and 65% cationic stable grade emulsions</td>
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C3.7.2: ENVIRONMENTAL WORK INSTRUCTIONS

THE ACSA ENVIRONMENTAL SPECIFICATION

It is a requirement of the Airports Company South Africa (ACSA)- that all construction works within ACSA airports be undertaken in accordance with the ACSA Environmental Specification

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EP2 Organisational Requirements
EP3 Method Statements
EP4 General Site Procedures
EP5 Site Clearance
EP6 Site Rehabilitation
EP7 Management and Monitoring
EP8 Measurement and Payment

LIST OF ABBREVIATIONS

ACSA Airports Company South Africa
AEC Airport Environmental Committee
EO Environmental Officer
ES Environmental Specification
EMS Environmental Management System for ACSA
ESA Environmentally Sensitive Areas
SABS South African Bureau of Standards
SAHRA South African Heritage Resource Agency
SSSI Sites of Special Scientific Interest
PART 1: ACSA ENVIRONMENTAL SPECIFICATIONS OVERVIEW

1. PURPOSE OF THE ENVIRONMENTAL SPECIFICATIONS

The purpose of the Environmental Specifications (ES) is to translate the recommendations of the Environmental Management System (EMS) into a contractual environmental specification for application during construction activities. The Environmental Specifications will be applicable to all construction activities that occur on ACSA owned and/or managed airports. Construction activities include construction of buildings, infrastructure as well as developer / tenant property at the airport.

2. IMPLEMENTATION OF THE ENVIRONMENTAL SPECIFICATIONS

The Environmental Specifications is intended for dissemination by ACSA to the “Employer”, who is the party for whom the construction works are to be executed (hereafter referred to as the Employer). The Employer may therefore be ACSA (the relevant Departmental Manager responsible for construction activities), a tenant or a developer with a land lease or another party responsible for developing a site or sites at the airport.

The Employer shall ensure that the Environmental Specification is included in the Tender Document(s) issued to the prospective Contractor and is also responsible for appointing/designating, in writing, a Responsible Person for the construction works.

The Responsible Person would manage the requirements outlined in the Environmental Specifications on behalf of the Employer. The Contractors shall incorporate the requirements of the ES in their tender submissions to the Employer and are responsible for implementing the ES on a daily basis.

The Environmental Officer (EO) will be responsible for updating the ES as required, auditing the implementation of the ES for each construction project and for maintaining the document control and record systems associated with it.

The Environmental Specifications report has been structured to be incorporated into a standard engineering tender document as the Environmental Particular Specification.

A ‘Particular Specification’ is the terminology used for a specification that covers activities that are not adequately covered in the standardised SABS 1200 series specifications for engineering contracts, or where the specification is sufficiently detailed to make it inappropriate for inclusion as a variation or addition to a standardised specification.

The Environmental Specification is a generic document applicable to construction projects at all ACSA airports. The majority of the specifications within the ES will apply to all construction work, although it is anticipated that variations to this specification may need to be included for some specific developments. Variations would be made by the Environmental Officer, prior to the issue of the ES to the Employer.
**PART 2: ENVIRONMENTAL Particular SPECIFICATIONS**

*Index to Environmental Particular (EP) Specifications*

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<th>Description</th>
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<td>EP4.1</td>
<td>Demarcation of Environmentally Sensitive Areas (ESAs)</td>
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<td>Location of camp and depot</td>
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<td>Ablution Facilities</td>
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<td>EP4.9</td>
<td>Protection of archaeological and paleontological sites</td>
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<td>Effluent and storm-water management</td>
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EP1  INTRODUCTION

The ES has been prepared and is to be implemented as part of the Environmental Management Systems for ACSA.

The ES provides specifications that the Contractor shall adhere to, in order to minimise adverse environmental impacts and optimise opportunities associated with construction activities.

The ES is provided to the Contractor at the tender stage so that the costs of implementing the ES are included into the contract cost and so that the Contractor is aware of his environmental responsibilities before commencing work.

The aim of this ES is to ensure that environmental management of site activities is integrated into the other management systems implemented by the Contractor (e.g. quality management, health and safety). For this reason, the ES includes a requirement for the Contractor(s) to develop their own system (i.e. roles, responsibilities and timing) for ensuring that the requirements of the ES are met, and that the Contractor checks, by means of an internal audit, that this system is operating effectively.

EP2  ORGANISATIONAL REQUIREMENTS

EP2.1  Organisational Structure

This section outlines the required management structure for the administration of the ES, with particular emphasis on the roles and responsibilities of key individuals.

The organisational structure for the implementation of the ES is presented in Figure 1 and should be viewed in conjunction with the roles and responsibilities below.

EP2.2  Roles and responsibilities

EP2.2.1  Airports Company South Africa

Airports Company South Africa is ultimately responsible for ensuring effective environmental management at the airport in terms of the scope of the Environmental Management Systems.

EP2.2.2  Environmental Officer (EO)

The Environmental Officer has been appointed by ACSA, and is responsible for monitoring the implementation of the requirements of the Environmental Specification by the relevant parties as specified.

The Environmental Officer shall:

- Review and approve in writing valid method statements;
- Inspect the Contractor’s site to check compliance with method statements and the requirements of the ES (at least weekly and more frequently if thought to be warranted by the EO) and maintain inspection reports on file;
- Meet with the Responsible Person for the developer or tenant, whereby the Responsible Person reports on the implementation of the ES (at least monthly) and keep a record of minutes of the above meetings;
- Provide material / manuals and assistance to the Responsible Person for the initial environmental training sessions; and
- Report in writing any problems related to conformance with the ES which cannot be resolved in cooperation with the relevant Responsible Person to ACSA Managers or the relevant developer/tenant.

**EP2.2.3 Employer**

The Employer shall:

- Include the ES, with any revisions, in any tender document related to construction activities on site;
- Designate in writing a Responsible Person for the proper implementation of the ES; and
- Send a copy of the letter of appointment of the Responsible Person to the EO.

**EP2.2.4 Responsible Person**

The Responsible Person for each building site or infrastructure installation shall:

- Develop a system to ensure that the ES is effectively implemented;
- Audit this system so that he/she can demonstrate to the EO that the ES is being effectively implemented;
- Ensure that Contractors staff, sub-contractors, suppliers etc. receive appropriate environmental awareness training prior to commencement of work on the project and maintain records of training. It is anticipated, though not a requirement, that the Responsible Person will deliver training sessions;
- Ensure that responsible persons for sub-contractors are designated to carry out the requirements of the Environmental Specifications
- Submit method statements to the Environmental Officer for approval as specified in the Environmental Specifications and maintain approved method statements on file; and
- Have sufficient authority to issue site instructions to the Contractors staff on their site. It is probable, though not a requirement, that the Responsible Person will be the Engineers Representative.

**Figure 1:** Organisational structure showing lines of responsibility and communication during the construction phase at the airport.
Sub-Contractors
EP3 METHOD STATEMENTS

The Contractor shall submit a written method statement to the Responsible Person for approval, covering those activities which are identified (in this document and/or by the Environmental Officer), as being potentially harmful to the environment.

Method statements indicate how compliance with the Environmental Particular Specification will be achieved.

The method statement shall state clearly:

- timing of activities;
- materials to be used;
- equipment and staffing requirements;
- the proposed construction procedure designed to implement the relevant environmental specifications;
- the system to be implemented to ensure compliance with the above; and
- other information deemed necessary by the Environmental Officer and Responsible Person.

The method statement shall be submitted at least five working days prior to expected commencement of work on an activity, to allow the Responsible Person time to study and approve the method statement. The contractor shall ensure ACSA that the activity is conducted according to the method statement which will be approved in writing by the ACSA successful tenderer (and also signed by the ACSA Environmental Officer), which shall be done within five working days of receipt.

Due to changing circumstances, it may be necessary to modify method statements. In such cases, the proposed modifications must be indicated and agreed upon in writing between the Environmental Officer and Responsible Person. The EO and Responsible Person must retain records of any amendments and ensure that the most current version of any method statement is being used.

EP4 GENERAL SITE PROCEDURES

EP4.1 Demarcation of Environmentally Sensitive Areas

Before construction commences there needs to be confirmation by ACSA’s Environmental Officer that the vegetation in the area to be impacted by construction activities is not identified as an Environmentally Sensitive Area (ESA). However, should Environmental Sensitive Areas be identified during the construction period the following actions would have to be taken to minimize adverse impacts:

- Environmentally Sensitive Areas, shall not be entered or used for any purpose unless a written motivation has been submitted to the EO by the Responsible Person, and written approval has been obtained from the EO;
- The Contractor shall exercise special care when working close to the ESA’s in order to avoid damage or physical disturbance of these areas. The EO may instruct the Responsible Person to restrict the number of construction personnel and equipment operating near Environmentally Sensitive Areas (ESA’s);
- Damage caused to ESAs by the Contractor shall be cause for the Contractor to make good any damaged areas to the written satisfaction of the EO;
- The Contractor shall note the proximity to the site of any designated ESAs. The Contractor shall fence any ESAs located within 20-m of the site boundary. The fencing shall extend along the boundary of the ESA for sufficient distance to ensure that the location of the ESA is obvious from the Contractor’s site and from the approach to the Contractor’s Site; and
- The Contractor shall make provision for the demarcation of ESAs with fencing to the following specifications:
Posts shall be wooden droppers or steel standards where the ground is too hard for wooden droppers to be driven in;
- The posts shall be long enough and spaced closely enough to support a strand of 12-gauge wire at 750-mm above the ground level; and
- The top 300-mm of the posts shall be painted white for easy visibility.

EP4.2 Location of camp and depot

The Contractor’s Camp and Materials Storage Area shall be located at a position approved by the Responsible Person. No site staff other than security personnel shall be housed on site.

The Contractor shall provide water and/or washing facilities at the Contractor’s Camp for personnel.

The Contractor’s Camp and Materials Storage Area shall be kept neat and tidy and free of litter.

EP4.3 Demarcation of the site

It is important that activities are conducted within a limited area to facilitate control and to minimise the impact on the existing natural environment, existing tenants and other construction activities in the vicinity and public thoroughfares.

The Contractor shall demarcate the boundaries of the site in order to restrict his construction activities to the site. The method of demarcation and the location of the demarcated area shall be determined by the Contractor and approved by the Responsible Person before any work being undertaken. The Contractor shall ensure that all plant, labour and materials remain within the boundaries of the site. Failure to do so may result in the Contractor being required to fence the boundaries of the site at his/her own expense to the satisfaction of the Responsible Person.

If additional areas (e.g. for lay down, rest areas) are required, these must be approved in writing by the Responsible Person. The Contractor is advised that it may take approximately one week to obtain such permission from the Responsible Person.

Suitable temporary fencing may need to be erected during construction to minimise the risk of injury to the public, and animals.

EP4.4 Ablution Facilities

The Contractor shall provide the necessary ablution facilities for all his personnel.

Toilets with chemical disinfectants shall be provided, with a minimum of one toilet per 15-persons. Toilets shall be easily accessible and shall be transportable. The toilets shall be secured to prevent them from blowing over, and shall be provided with an external closing mechanism to prevent toilet paper from being blown out. Toilet paper dispensers shall be provided in all toilets. Toilets shall be cleaned and serviced regularly by a reputable toilet servicing company. Toilets shall be emptied before long weekends and builders’ holidays.

The Contractor shall ensure that chemicals and/or waste from toilet cleaning operations are not spilled on the ground at any time. Should there be repeated spillage of chemicals and/or waste (i.e. more than three incidents), the EO shall require the Contractor to place the toilets on a solid base with a sump at his own expense.
expense. Accumulations of chemicals and waste will have to be removed from the site and disposed at an approved waste disposal site or sewage plant.

Abluting anywhere other than in the toilets shall not be permitted. Repeated use of open areas, rivers or other areas for ablution purposes (i.e. more than three incidents) may result in the guilty party being given a spot fine. The Contractor shall also be responsible for cleaning up any waste deposited by his personnel.

**EP4.5 Domestic waste water**

Waste-water from any other ablution or kitchen facilities on site shall be discharged into a suitable conservancy tank. The Contractor shall be responsible for ensuring that the system continues to operate effectively throughout the project and that the conservancy tank is emptied as required during the project. The Contractor shall employ a suitable qualified sub-contractor or the local authority to empty the conservancy tank.

**EP4.6 Refuse**

Refuse refers to all solid waste, including construction debris (e.g. wrapping materials, timber, cans etc.) waste and surplus food, food packaging etc.

The Contractor shall institute an on-site waste management system that is acceptable to the Responsible Person in order to prevent the spread of refuse within and beyond the site. The Contractor is reminded that wind velocities on the construction site can be extremely high.

All waste shall be collected and contained immediately. The Contractor shall institute a weekly clean-up of the site if so instructed by the Responsible Person. This daily/weekly clean up shall be for the Contractor’s account.

The Contractor shall not dispose of any waste and/or construction debris by burning or burying. The use of waste bins and skips is recommended. The bins shall be provided with lids and an external closing mechanism to prevent their contents from blowing out. The Contractor shall ensure that all waste is deposited by his employees in the waste bins for removal by the Contractor. Bins shall not be used for any purposes other than waste collection and shall be emptied on a regular basis. All waste shall be disposed of off site at approved landfill sites.

Waste generated at the construction camps shall be separated into recyclable and non-recyclable waste, and shall be separated as follows:

- Hazardous waste (including used oil, diesel, petrol tins, paint, bitumen, etc.);
- Recyclable waste (paper, tins, glass);
- General waste; and
- Reusable construction material

Recyclable waste shall be deposited in separate skips/bins and removed off site for recycling. The Contractor may wish to enter into an agreement with the surrounding communities and/or his staff with regard to the collection and sale of recyclable and reusable materials.

Hazardous waste, including waste oil and other chemicals (e.g. paints, solvents) shall be stored in (an) enclosed area(s), and shall be clearly marked. If deemed necessary by the Responsible Person, the Contractor shall obtain the advice of a specialist waste expert concerning the storage of hazardous waste. Such waste shall be disposed of off site by a specialist waste contractor, at a permitted hazardous waste disposal site.
The EO shall be consulted about, and agree to, the method of storage and disposal of hazardous waste.

The Contractor is advised that spot fines for littering have been included in this document. Offenders found littering will be liable for a spot fine.

**EP4.7 Protection of fauna and flora**

All fauna within and around the site shall be protected. Birds and animals shall not be caught or killed by any means, including poisoning, trapping, shooting or setting of snares. Offenders may be prosecuted in terms of the Animals Protection Act 71 of 1962.

**EP4.8 Defacement of natural features**

Defacement of any features outside of the construction site shall not occur without the prior written permission of the Responsible Person. Any features defaced by the Contractor shall be restored to the satisfaction of the Responsible Person.

**EP4.9 Protection of archaeological and palaeontological Sites**

If any possible palaeontological/archaeological material is found during excavations, the Contractor shall stop work immediately and inform the Responsible Person. The Responsible person will inform the South African Heritage Resource Agency (SAHRA) and arrange for a palaeontologist/archaeologist to inspect, and if necessary excavate, the material, subject to acquiring the requisite permits from the National Monuments Council. Costs incurred will be for the Employer's account.

**EP4.10 Effluent and storm-water management**

**EP4.10.1 General**

The Contractor must ensure that pollution of the ground or surface water does not occur as a result of site activities. Pollution could result from the accidental release of contaminated run-off from construction camps, discharge of contaminated construction water, chemicals, oils, fuels, sewage, run-off from stockpiles, solid waste, litter, etc.

**EP4.10.2 Run off from construction camps**

The Contractor shall ensure that polluted run-off (excluding silt “pollution”), such as run-off from construction camps where equipment is cleaned and/or serviced, fuel stores, workshops, etc. is not discharged overland. The Contractor may direct it into the local sewerage main, with the written permission of the Responsible Person. Alternatively, the Contractor shall erect an earth/brick berm 0.5 m high around such areas and shall collect all run-off from these areas and store it in a conservancy tank for removal from the site. The Contractor shall ensure that silt-laden water is not discharged directly into any surface watercourses (i.e. vleis, etc.), and shall take suitable measures to prevent this.

Natural run-off shall be diverted away from any camps towards the storm-water drains where these are available. Special care must be taken in areas susceptible to erosion, e.g. steep slopes. The Contractor shall ensure that excessive quantities of sand, silt and silt-laden water do not enter the storm-water drain system, or any surface watercourse. The Contractor shall take appropriate measures, e.g. the erection of silt traps, or drainage retention areas, to prevent silt and sand entering drainage or watercourses. Any partial or complete blockage of the storm-water drainage system shall be cleared by the Contractor at his / her own expense.
EP4.10.3 Discharge of construction water

Construction water refers to all water dirtied as a result of construction activities.

The Contractor may discharge silt laden water overland and allow this water to filter into the ground. However, s/he shall ensure that he does not cause erosion as a result of any overland discharge.

The Contractor may discharge limited quantities (less than 50L) of cement-laden water overland, i.e. washings from trowels, wheelbarrows and the like.

Water from washing large concrete-mixing equipment (mixers and the like) shall not be discharged overland. Such water shall be collected in a conservancy tank, removed from the site and disposed of in the correct manner. The Contractor may consider reusing such water for washing other concrete equipment to minimise the amount required to be removed off site.

Trucks delivering concrete shall not wash the trucks or the chutes on the site. All washing operations shall take place off site at a location where wastewater can be disposed of in the correct manner.

EP4.10.4 Servicing/fuelling of construction equipment

Servicing and fuelling should preferably occur off site.

However, if these activities occur on site, the Contractor shall ensure that all servicing of vehicles and equipment takes place in designated areas agreed upon by the Responsible Person. All waste shall be collected and disposed of off site at an appropriately licensed landfill site. All equipment that leaks onto the ground shall be repaired immediately or removed.

Similarly, no vehicles or machines shall be refuelled on site except at designated refuelling locations, unless otherwise agreed with the Responsible Person. The Contractor shall not change oil or lubricants anywhere on site except at designated locations, except if there is a breakdown or an emergency repair. In such instances, the Contractor shall ensure that he has Drizit pads (or equivalent) and/or drip trays available to collect any oil, fluid, etc.

EP4.10.5 Fuels and chemicals

The Contractor shall take all reasonable precautions to prevent the pollution of the ground and/or water resources by fuels and chemicals as a result of his activities.

The Contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site.

The Contractor shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Pumps and other machinery requiring oil, diesel, which is intended to remain in one position for longer than two days shall be placed on drip trays. The drip trays shall be emptied regularly and the contaminated water disposed of off site at a facility capable of handling such wastewater. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing, and before long weekends and holidays.

The Contractor shall remove all oil-, petrol-, and diesel-soaked sand immediately and shall dispose of it as hazardous waste.
Should the Responsible Person/ECO and/or the relevant authorities deem it necessary to institute a programme for the removal of contaminated ground resulting from the non-compliance of the controls detailed above, these costs will be for the Contractor's account. Remedial action shall be approved by the ECO and relevant authorities, if appropriate.

EP4.11 Dust control

The Contractor shall be responsible for the continued control of dust arising from his/her operations, through measures including, but not limited to, spraying of water on bare areas, rotovating straw bales into the soil surface and the scheduling of dust-generating activities to times when wind velocity is low. Overhead sprayers shall not be used in windy conditions, due to water loss through evaporation. The use of water carts is preferred.

The Contractor shall inform the Responsible Person 48 hours in advance of anticipated “unavoidable” dust-generating activities. The Responsible Person and/or ECO may inform adjacent land users, tenants and communities about the possibility of dust pollution, and the approximate duration of the problem.

EP4.12 Noise control

The Contractor shall take all reasonable precautions to minimise noise generated on site as a result of his operations, especially when working in areas or on activities that may impact on neighbouring land users.

The Contractor shall comply with the applicable regulations with regard to noise.

The Contractor shall inform the Responsible Person 48-hours in advance of anticipated “unavoidable” noise-generating activities. The Responsible Person and/or Environmental Officer may inform adjacent land users, tenants and communities about the possibility of noise pollution and the approximate duration of the problem.

EP4.13 Materials use, handling, storage and transport

Procedure for material handling must be discussed with and approved by the Responsible Person prior to commencement of this activity.

EP4.13.1 Use of cement/concrete

The Contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein. Therefore the Contractor shall ensure that:

- concrete is mixed on mortar boards, and not directly on the ground;
- visible remains of concrete, either solid, or from washings, are physically removed immediately and disposed of as waste. Washing visible signs into the ground is not acceptable; and
- all aggregate is also removed.

EP4.13.2 Fuel storage and use

Tanks containing fuels shall have lids and shall remain firmly shut. Only clean, empty tanks may be stored on the bare ground. Fuel stores shall be placed on a bunded sealed base - the bunds shall have a volume of 110% of the volume of the largest tank in the storage area. Any waste-water or spilled fuel collected within the bund shall be disposed of as hazardous waste.
The Contractor shall take all the necessary precautions to prevent fires or spills. No smoking shall be allowed in the vicinity of the fuel stores. Failure to adhere to this specification shall be cause for a spot fine being imposed on the offender.

The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores.

**EP4.13.3 Hazardous materials**

The Contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous materials. If necessary, the Contractor shall obtain the advice of the manufacturer with regard to the safe handling of hazardous materials. Any claims against the Contractor shall be for his/her account.

The Contractor shall ensure that there is an emergency procedure to deal with accidents and incidents (e.g. spills) arising from hazardous substances. The Contractor shall report major incidents (spills in excess of 50 litres) to the Responsible Person immediately.

The Contractor shall maintain a register of spills or incidents involving hazardous materials, as well as measures taken.

The Contractor shall ensure that information on all hazardous substances is available to all personnel on site. The Contractor shall furthermore be responsible for the training of all personnel on site who will be handling the material about its proper use, handling and disposal.

**EP4.13.4 Transport of materials outside the site**

The Contractor shall comply with all the applicable local, regional and national by-laws with regard to road safety and the transport of materials, especially hazardous and/or toxic materials. Any claims against the Contractor shall be for his account.

The Responsible Person shall provide the Environmental Officer with a schedule of the proposed transportation of significant quantities of hazardous material onto the site, before commencing work on site. The Environmental Officer may request further details or notifications of specific material movements if considered necessary.

**EP4.14 Emergency procedures**

**EP4.14.1 General**

The Contractor shall ensure that emergency procedures are set up prior to commencing work. Emergency procedures shall include, but are not limited to, fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc. Emergency procedures, including responsible personnel, contact details of emergency services, etc. shall be made available to all the relevant personnel and shall be clearly demarcated at the relevant locations around the site.

The Responsible Person shall advise the EO of any emergencies on site, together with a record of action taken.

**EP4.14.2 Fire**
The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of his/her activities on site, and shall also comply with the requirements of the Occupational Health and Safety Act 85 of 1993.

No open fires shall be permitted on or off site. Closed fires or stoves shall only be permitted at designated safe sites in the construction camps. Fires shall also not be permitted near any potential sources of combustion, such as fuel stores, stockpiles of plant material etc.

The Contractor is advised that sparks generated during welding, cutting of metal or gas cutting can cause fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities.

The Contractor shall be liable for any expenses incurred by any organisations called to assist with fighting fires, and for any costs relating to the rehabilitation of burnt areas.

EP4.15 Social issues

EP4.15.1 Third party or public complaints

The Environmental Officer shall be responsible for responding to queries and/or complaints and may request assistance from the Responsible Person in this regard.

The Environmental Officer shall notify the Responsible Person of any complaints lodged by a third party, and request appropriate information and measures to address such complaints. The Environmental Officer shall be responsible for maintaining a complaints register in which all complaints are recorded, as well as action taken. This register shall be available to the Responsible Person and the Contractor on request.

EP4.15.2 Information sharing

The Responsible Person and/or the Contractor may need to make staff available for formal consultation with affected parties for the purpose of explaining the construction process and answering queries if necessary.

EP5 SITE CLEARANCE

EP5.1 Removal of topsoil

Following removal of vegetation from the site, all topsoil shall be removed (up to a maximum of 30-cm depth) and stock-piled for re-use in subsequent rehabilitation and landscaping activities. The stockpiles shall not be higher than 2-m in order to minimise composting. The stockpiles of topsoil shall be located in an area agreed with the Responsible Person.

EP5.2 Stabilisation of steep slopes

The disturbance of steep slopes, for example by the removal of vegetation, may result in slope instability and erosion by rain and surface run off. The Contractor shall ensure that slopes that are disturbed during construction are stabilised to prevent erosion occurring. Where re-vegetation of slopes is undertaken, this shall be in accordance with the specification provided in EP6.

Slopes that are susceptible to accidental damage during construction shall be protected to reduce the risk of disturbance.
Any erosion that does occur must be reinstated at the Contractor’s cost.

EP5.3 Removal of alien vegetation

The Contractor shall clear all alien vegetation from areas within the demarcated site that are to be landscaped or which fall within open space or buffer zones (e.g. pipeline routes, road fringes).

EP6 SITE REHABILITATION

EP6.1 Scope

The Contractor shall be responsible for rehabilitating any areas cleared or disturbed for construction purposes that are to be incorporated into open space or buffer zones. The Contractor shall re-vegetate such areas in accordance with the specification provided below.

The Contractor shall stabilise, by straw rot ovation or other means, any areas that are cleared or disturbed for construction purposes which are not going to be incorporated into open space or buffer zones (i.e. areas that will be subsequently developed by another party).

All construction equipment and excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work. No discarded materials of whatsoever nature shall be buried on the site or on any other land not owned by ACSA.

EP6.2 Landscaping and preparation for re-vegetation

Areas that require reshaping shall be cut, filled and compacted so as to follow the contours of the surrounding landscape. Topsoil removed from the area initially shall be replaced. Care must be taken not to mix the topsoil with the subsoil during shaping operations. Should a crust form on the soil before re-vegetation is commenced, the Contractor shall, at his own cost, loosen the crust by scarifying to a depth of 150-mm.

EP7 MANAGEMENT AND MONITORING

This section focuses on the systems and procedures required to ensure that the environmental specifications are effectively implemented. The emphasis is on monitoring, training and penalties/incentives aimed at ensuring compliance with this document. Suitable documentation and external checks are crucial to ensure compliance and methods to achieve this are also presented in this section.

EP7.1 General Inspection, Monitoring and Reporting

The Responsible Person shall:

- Inspect the site on a daily basis to ensure that the environmental specifications are adhered to.

- Provide the Environmental Officer with a monthly written report, detailing both compliance with the Environmental Specifications as well as general environmental performance.

- Maintain a record of major incidents (spills, impacts, complaints, legal transgressions etc) as well as corrective and preventive actions taken, for submission to the Environmental Officer at scheduled monthly report back meetings.
• Conduct regular internal audits to ensure that the system for implementation of the ES is operating effectively. The audit shall check that a procedure is in place to ensure that:

• the Method Statements and Environmental Specifications being used are the up-to-date versions;
• variations to the Environmental Specifications/Method Statements and non-compliances and corrective action are documented;
• appropriate environmental training of personnel is undertaken; and
• emergency procedures are in place and effectively communicated to personnel.

• Provide the required information to the Environmental Officer during external audits conducted, as part of the Environmental Management Systems auditing procedure. The information required will include the reports of internal audits conducted by the Responsible Person.

EP7.2  Environmental awareness training

EP7.2.1  Environmental awareness training prior to commencing work

An initial environmental awareness training workshop shall be held prior to any work commencing at the airport. The Responsible Person shall organise (deliver) the workshop and will record the names of those attending. It is recommended that the Contractor allow one hour for this workshop. The workshop shall be attended by all site staff, including sub-contractor's staff.

The Contractor is responsible for ensuring that personnel commencing work on site after the start of the contract (who therefore miss the initial workshop) are also made aware of the environmental procedures before commencing work.

The emphasis should be on any (potential) environmental impacts relating to the construction activities to be undertaken on site and the related environmental precautions, which need to be taken to avoid or mitigate these impacts. The contractual obligation to comply with the specifications in the Environmental Specifications must also be emphasised (some training material will be specific to certain sites or tenders).

A general environmental awareness programme aimed at all employees of the Contractor, sub-contractors and suppliers is available from the Environmental Officer.

EP7.2.2  Additional environmental awareness sessions

If there are persistent breaches of the specifications contained in the Environmental Specification and/or if new environmental issues arise during the course of construction, the Environmental Officer may require additional environmental training sessions. Attendance at these sessions will be determined by the EO, in consultation with the Responsible Person. The Contractor shall make provision for one hour a month for attendance (of construction staff) at these meetings.

EP7.3  Documentation

The Responsible Person shall ensure that all records of spills, pollution incidents, spot fines, training details etc. are copied to the Environmental Officer for his/her records. All documents shall be open for inspection by the Airport Environmental Committee (AEC).

The Environmental Officer shall ensure that a register of public complaints and action taken thereon, plus the relevant documentation from the Contractors, is maintained.
EP7.4 Incentives and penalties

EP7.4.1 Incentives

The Environmental Officer may identify a Contractor that is best implementing this Environmental Specifications and may make a (monthly) award to, or acknowledge, that Contractor.

EP7.4.2 Penalties

Spot fines shall be imposed by the Environmental Officer on Contractors who are found to be infringing these specifications. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine, and furthermore the Contractor shall determine how to recover the fine from the relevant employee and/or sub-contractor. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement and shall advise the Environmental Officer accordingly.

The Contractor is also advised that the imposition of spot fines does not replace any legal proceedings by the Council, authorities, land owners and/or members of the public may institute against the Contractor.

Spot fines shall be between R500 and R2000, depending upon the severity of the infringement. The decision on how much to impose will be made by the Environmental Officer, and will be final. In addition to the spot fine, the Contractor shall be required to make good any damage caused as a result of the infringement at his/her own expense.

A preliminary list of infringements for which spot fines will be imposed is as follows:

- moving outside the demarcated site boundaries;
- littering of waste on site and surrounds and burying waste on site and surrounds;
- smoking in the vicinity of fuel storage and filling areas and in any other areas where flammable materials are stored/used;
- making fires outside designated areas;
- defacement of natural features;
- spillage onto the ground of oil, diesel, etc;
- picking/damaging plant material;
- damaging/killing wild animals; and
- additional fines as determined by the Environmental Officer.

The Responsible Person may also order the Contractor to suspend part or all the works if the Contractor repeatedly causes damage to the environment by not adhering to the ES (i.e. more than 3 cases of infringements). The suspension will be enforced until the offending actions, procedure or equipment is corrected. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

EP7.5 External audit

Regular scheduled audits of the EMS will be conducted. However, this is not a dedicated audit of the implementation of this document (which is one of many components of the EMS). Nevertheless, it is anticipated that implementation of the terms and specifications contained in this document will be periodically audited as part of the EMS audit.

All documentation held by the Environmental Officer shall be available for the EMS audit at all times. Contractors shall also be required to provide any information required by the EMS auditors.
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<tr>
<th>ISSUE</th>
<th>REQUIREMENT FOR COMPLIANCE</th>
<th>COMMENTS/ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td>Site boundary is clearly demarcated and activities undertaken within boundary.</td>
<td></td>
</tr>
<tr>
<td>Toilets</td>
<td>Adequate toilets have been provided. These are secure and well maintained.</td>
<td></td>
</tr>
<tr>
<td>Wastewater</td>
<td>Waste water is discharged to the reticulated system or to a conservancy tank which is emptied as required.</td>
<td></td>
</tr>
<tr>
<td>Refuse</td>
<td>Site is generally tidy and free from litter.</td>
<td></td>
</tr>
<tr>
<td>Natural features</td>
<td>No defacement of natural features to be protected in the site or the immediate surrounding area.</td>
<td></td>
</tr>
<tr>
<td>Runoff</td>
<td>No polluted runoff from the site.</td>
<td></td>
</tr>
<tr>
<td>Fuels &amp; chemicals</td>
<td>Servicing &amp; fuelling occurs in designated place. No significant ground contamination.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drip trays in place for pumps and other machinery in fixed location for at least 2 days.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fuel stores on sealed base and adequately bunded.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hazardous materials stored in an enclosed area or as agreed in method statement and appropriately labelled.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spill clean up materials available on site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No significant spillage.</td>
<td></td>
</tr>
<tr>
<td>Dust</td>
<td>No excessive dust which could cause a nuisance to employees or the public.</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>No fires on site. Use of closed stoves or fires limited to construction camps.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fire extinguishers available near any welding or metal cutting.</td>
<td></td>
</tr>
<tr>
<td>Topsoil</td>
<td>Topsoil removed and stockpiled &lt; 2m high.</td>
<td></td>
</tr>
<tr>
<td>Stabilisation</td>
<td>Slopes stabilised as necessary to prevent erosion.</td>
<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td>Responsible Person’s record of major incidents is up to date.</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>All Contractors’ personnel are aware of environmental responsibilities.</td>
<td></td>
</tr>
<tr>
<td>Records of training maintained by Responsible Person.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C3.7.4: ACSA HOARDING SPECIFICATION

1.0 Introduction

The manual was produced by ACSA Project Management Division as reference to Consultants, contractors and other persons who intend to execute any construction works at the Cape Town International Airport.

It is important to note that the application of hoarding specifications as detailed herein is the ACSA Standard and must be issued to every (Hoarding) Contractor for implementation prior to execution of any hoarding work. It is the responsibility of the consultants and contractor to verify the latest revision with the ACSA-CTIA Project Manager, Project Management Division.

Failure to verify all requirements of all hoarding finishes internal and externally may result in the contractor having to incur additional costs for alterations.

The scope of hoarding work should always be part of the construction programme and a major priority for any construction work to commence on site for ACSA-CTIA. The Project Team must inform contractors at tender stage that working on the airport environment will require them to execute hoarding work outside normal working hours.

It is envisaged that the manual will be informative enough to everyone involved but in certain areas the specification for internal and external hoarding may not be applicable, such exceptions will be addressed as they arise and must be referred to the ACSA-CTIA Project Manager.

All hoarding remains the property of ACSA (if paid for in Preliminaries) but must be removed off site by the contractor on completion of the project subject to further instruction by the ACSA- CTIA Project Manager.
2.0 Types of Hoarding

2.0.1 Type A. *(See Detail A)*
2.0.2

This type of internal hoarding will be applicable where construction work takes place adjacent to other tenants to minimise noise, dust and visual screening.

**Construction and Material**

The construction method is of permanent nature and uses the existing building structure for secure fixing, i.e. fixed to the roof structure and the floor.

The framework consists of galvanised floor track 61 mm wide fixed to the floor and soffit with suitable fasteners at 600 mm centres minimum.

The board on the public side will be 16 mm chipboard with melamine finish (Grey Cambrink) and on the construction side can be either 12 mm chipboard for heavy usage or 12, 7 mm Gypsum plasterboard for lighter usage.

NB: Heavy usage when shelving is to be hung onto the walls or when any other fixing onto the walls is required.

Lighter usage when no hanging is to be done onto the walls.

The melamine boards are cut into module width of 900 mm or 1200 mm and the heights will be those that can be manoeuvred by human labourers without any hindrance to the public where applicable, preferably 3000 high.

The melamine board will be held in place by a top hat section on the vertical joint, colour black. The back board will be screwed directly to the grid.

Where soundproofing is required the hoarding will be filled with an approved insulating material.

2.0.2 Type B. *(see detail A)*
The method of construction is similar to Permanent type except that the hoarding is only on the public side and is melamine finish (Grey Cambrink).

Construction and Material

The construction method will match that of the Permanent hoarding on the public side only and No finishes on the construction side.

No insulation for this type of hoarding will be required.

2.0.3 Type C.
This type of hoarding is made out of 2100 h X 900 w melamine faced (Grey Cambrink) chipboard panel on metal supports. Generally, it will consist of four to six panels that can be placed around a particular area for maintenance or repair to floors.

Construction and Material

The panels off-cuts can be easily acquired from the hardware outlets and the steel support frame must be fixed to the panel to prevent the panels from falling over.

2.0.4 Type D.

Yellow New Jersey barriers or orange plastic netting (at the discretion of the ORTIA-Project Manager) must be used to barricade the construction site from the public prior to construction work taking place.
Construction and Material

Steel post at 3000 mm maximum apart onto which the orange plastic netting is attached to.

Water filled yellow New Jersey barrier used to block roadway temporarily during repairs or entrance roadway prior to construction work taking place.

Note:
High impact industrial moulded, interlocking plastic barriers to be filled with water to make it stable and not movable. The hoarding must be kept neat and tidy at all times.

2.0.5 Type E

This hoarding must remain in place for the duration of the construction period and is only removed at the end of construction when all the work has been completed.

Either one of two types of hoarding is acceptable, viz. Sheet metal and Pre-cast concrete hoarding mainly used for site establishment.
2.0.6 Type F.

The sheet metal hoarding must be a minimum of 2000mm high around the perimeter of the construction site establishment. *(See detail B)*

Construction and Material

The IBR/Corrugated sheeting must be fixed onto steel or timber posts, with horizontal steel members positioned at the top, centre and bottom to secure the sheeting firmly. The sheet metal is to extend to ground level or floor finish level i.e.: no gaps are permitted.

2.0.7 Type G.
Pre-cast panel and pole hoarding will be used when indicated by ACSA. This hoarding will be used for contractor yards that will be used for extended periods of time. Specifications to be confirmed by the ACSA Project Manager.

2.0.8 Type H.

These are concrete panels 2100 h X 1500 w X 200 thick similar to the concrete walls around the airport site.

The panel thickness slopes from the top to the bottom, thus the thickness at the top of the panel are 100 mm. The base extends 500 mm on either side of the centre of panel for
support. These panels can be used for permanent or temporary purposes.

Type I – Hoarding to restricted area

- The temporary fence to construct the road leading to the GSE Workshops can be a mesh fence with cloth. However the contractor to ensure that the fence is secure.

**Construction and Material**

These panels are constructed out of concrete; the inner surface shaped according to the shattering used on the public side should be roughcast to give a permanent appealing appearance. Where this panels are permanently installed closer to Terminals they should be painted in colour specified below for external hoarding.

3.0 **Painting**

Internal hoarding will be mainly grey cambrink melamine on the public side and where painting is used, it must match the grey cambrink melamine. In the other side where plane chipboard or plasterboard is used and the area utilised as a temporal office, then the walls will be painted with white contractors PVA.

All external types hoarding will be painted and all paint types must be as per specification unless changed by the ACSA-ORTIA Project Manager.

Painting specifications

For IBR/Corrugated sheeting paint spec: PLASCON WALL & WALL. TEAL RAL 5021.

The supporting posts are to be painted in PLASCON WALL & WALL. TEAL RAL 5021.

4.0 **Corner Protectors**

Internal hoarding to have aluminium corner protectors to match the height of the melamine
chipboard panels used and the size to be 50 mm X 50 mm. External hoarding to have no corner protectors but the contractor to finish of the corners neatly i.e. with corner flashing to protect public from being injured.

5.0  **Signage**

All hoarding should have enough signage to inform the general public of the construction process.

A standard ACSA-ORTIA Buzzi Bee peel & stick signage, with an appropriate message approved by the ORTIA-Project Manager, must always be used on flat surfaces. For non-flat surfaces like corrugated/IBR sheeting the Buzzi Bee sticker should be mounted onto flat Perspex sheeting 1200 w X 1500 h surface and hung onto the hoarding. *(See Detail C)*

Advertising or other information may be fixed to the hoarding at ACSA’s discretion in a snapper frame.

*Project Management Division at C.T.I.A*

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**C3.7.5: ACSA PERMIT REGULATION**

**ALL PERMIT COST WILL INCREASE BY 15% YEAR TO YEAR**

<table>
<thead>
<tr>
<th>Permit Type</th>
<th>Duration</th>
<th>Current Price</th>
<th>NEW PRICE (2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERSONAL PERMITS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### C3.7.7: LIST OF PENALTIES IMPOSED BY ACSA

<table>
<thead>
<tr>
<th>Permit Type</th>
<th>Duration</th>
<th>Amount</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal permanent permits</td>
<td>6days-2years</td>
<td>236.00</td>
<td>268</td>
</tr>
<tr>
<td>Per Icon</td>
<td></td>
<td>66.00</td>
<td>70</td>
</tr>
<tr>
<td>Personal temporary permits</td>
<td>2-5 days</td>
<td>236.00</td>
<td>270</td>
</tr>
<tr>
<td>Personal visitors permits</td>
<td>1 day</td>
<td>236.00</td>
<td>270</td>
</tr>
<tr>
<td><strong>VEHICLE PERMITS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle permanent permits</td>
<td>1 year</td>
<td>1076.00</td>
<td>1141</td>
</tr>
<tr>
<td>Vehicle add-on fee</td>
<td>1 year</td>
<td>5105.00</td>
<td>No increase</td>
</tr>
<tr>
<td>Vehicle temporary permits</td>
<td>1-3mths</td>
<td>282.00</td>
<td>300</td>
</tr>
<tr>
<td>Prorated add-on fee</td>
<td>1-3mths</td>
<td>1370.00</td>
<td>1452</td>
</tr>
<tr>
<td>Vehicle temporary permits</td>
<td>3-6mths</td>
<td>560.00</td>
<td>595</td>
</tr>
<tr>
<td>Prorated add-on fee</td>
<td>3-6mths</td>
<td>2737.00</td>
<td>2900</td>
</tr>
<tr>
<td>Vehicle temporary permits</td>
<td>1-3 days</td>
<td>130.00</td>
<td>138</td>
</tr>
<tr>
<td>Vehicle temporary permits</td>
<td>4-30 days</td>
<td>282.00</td>
<td>300</td>
</tr>
<tr>
<td>Reprint of Vehicle Disc</td>
<td></td>
<td>130.00</td>
<td>138</td>
</tr>
<tr>
<td>Change of Registration</td>
<td></td>
<td>130.00</td>
<td>138</td>
</tr>
<tr>
<td>Contractors Vehicles 1-3 Months</td>
<td></td>
<td>490.00</td>
<td>520</td>
</tr>
<tr>
<td>Contractors Vehicles 4-6 Months</td>
<td></td>
<td>975.00</td>
<td>1035</td>
</tr>
<tr>
<td>Permanent Contractors Vehicle Permit</td>
<td>1 year</td>
<td>1865.00</td>
<td>1975</td>
</tr>
<tr>
<td><strong>PARKING PERMITS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Parking</td>
<td>1 year</td>
<td>90.00</td>
<td>95</td>
</tr>
<tr>
<td>Taxi Parking</td>
<td>1 year</td>
<td>90.00</td>
<td></td>
</tr>
<tr>
<td><strong>LOST/DAMAGED PERMITS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st lost Personal permit</td>
<td></td>
<td>530.00</td>
<td>560</td>
</tr>
<tr>
<td>2nd loss personal permit</td>
<td></td>
<td>855.00</td>
<td></td>
</tr>
<tr>
<td>3rd loss personal permit</td>
<td></td>
<td>No issue</td>
<td>No issue</td>
</tr>
<tr>
<td>ACSA 1st lost Personal Permit</td>
<td></td>
<td>280.00</td>
<td>300</td>
</tr>
<tr>
<td>ACSA 2nd lost Personal Permit</td>
<td></td>
<td>585.00</td>
<td>620</td>
</tr>
<tr>
<td>ACSA 3rd lost Personal Permit</td>
<td></td>
<td>No issue</td>
<td>No issue</td>
</tr>
<tr>
<td>1st damaged permit</td>
<td></td>
<td>425.00</td>
<td>450</td>
</tr>
<tr>
<td>2nd damage permit</td>
<td></td>
<td>535.00</td>
<td>570</td>
</tr>
<tr>
<td>3rd damaged permit</td>
<td></td>
<td>No issue</td>
<td>No issue</td>
</tr>
</tbody>
</table>
**House Rules for Construction**

The following “construction house rules” from ACSA must be adhered to:

- All vehicles related to your works are to be parked within your hoarded site or in public parking. Any contractor vehicle towed for illegal parking will be for the contactors account.
- Contractors are to keep ACSA informed of works that may affect the ACSA environment. Please make sure that all adequate measures are taken to minimise the effects of such work.
- You are required to ensure that all facilities adjacent to your site are adequately protected. All damages to surrounds will be for your account.
- In submitting a bid for the works, the Bidder acknowledges and accepts that they may be working in areas that pose a risk to airport operations and safety. Irrespective of any contractual provisions relating to the overall time period allowed to execute the works or the time period wherein any defects relating to completed works may be remedied, it is a specific contractual requirement that the contractor will immediately give effect to and attend to any instruction issued by the principal agent or authorised employers representative, relating to corrective action to be taken on matters relating to airport operational requirements or safety, failing which alternative contractors will be appointed to give effect to such instructions and the cost related thereto offset against monies owing to the contractor or recovered from the contractor. The employer’s intervention in such instances will not affect/prejudice his rights or affect any guarantees which are required in terms of the contract.
- Workmen to be clearly indicated by overalls, hardhats, etc.
### LIST OF PENALTIES IMPOSED BY ACSA

<table>
<thead>
<tr>
<th>NO.</th>
<th>CONTRAVENTION</th>
<th>PENALTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Unauthorised water connections</td>
<td>R 5 000-00</td>
</tr>
<tr>
<td>2.</td>
<td>Unauthorised connections to fire main</td>
<td>R 5 000-00</td>
</tr>
<tr>
<td>3.</td>
<td>Unauthorised electricity connections</td>
<td>R 5 000-00</td>
</tr>
<tr>
<td>4.</td>
<td>Unauthorised use of passenger trolleys</td>
<td>R 2 500-00</td>
</tr>
<tr>
<td>5.</td>
<td>Unauthorised dumping of spoilt material</td>
<td>R 4 000-00</td>
</tr>
<tr>
<td>6.</td>
<td>Unauthorised dumping into storm-water and sewer mains</td>
<td>R 5 000-00</td>
</tr>
<tr>
<td>7.</td>
<td>Non-compliance with environmental specifications</td>
<td>In accordance with ACSA Environmental Specification</td>
</tr>
<tr>
<td>8.</td>
<td>Non-compliance with safety specifications</td>
<td>In accordance with the OHS Act</td>
</tr>
<tr>
<td>9.</td>
<td>Unauthorised usage of roads on the located on ‘Airside’</td>
<td>R 3 500-00</td>
</tr>
<tr>
<td>10.</td>
<td>Staff members outside site camp or hoarded site area, loitering, etc</td>
<td>R 1 500-00</td>
</tr>
</tbody>
</table>
The following ACSA House Rules for Construction must be adhered to:

- All vehicles related to your works are to be parked within your hoarded site or in public parking. Any contractor vehicle towed for illegal parking will be for the contactors account.
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<table>
<thead>
<tr>
<th>R 1 500.00 Per Incident of Non-Compliance</th>
</tr>
</thead>
</table>