Rural development
& agrarian reform

Department:
Rural Development & Agrarian Reform
PROVINCE OF THE EASTERN CAPE

BID FOR THE CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE

LOCATION: TSOLO

VOLUME 3 – CONTRACT

BID NO - SCMU8-22/23-0063

Head Office: **Supply Chain Management** Private Bag X 0040 Bhisho 5605 Contact: Name: Nosibusiso Mateta Telephone: 040 605 5263 / 079 505 9722	**Consultants:** **Intsika Architects & Principal Agents** 1st Floor, Leadwood House, Cedarsquare Bonza Bay Road, Beacon Bay, East London 5241 Contact: Name: Rob Gillard Telephone: 043 748 2949
Tenderer……	
CSD Number:	
LOGIS Number:	
Preference Points Claimed:	
Closing date on tender: Thursday 3rd November 2022	**Time at: 11:00 am**

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EASTERN CAPE PROVINCIAL GOVERNMENT
DEPARTMENT OF RURAL DEVELOPMENT AND AGRARIAN REFORM

BID FOR THE CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE AT TSOLO

C1.2 Contract Data

C1.2 : CONTRACT DATA : JBCC 2000 PRINCIPAL BUILDING AGREEMENT (Edition 4.1 of March 2005)

Project title:	**CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE AT TSOLO**
Bid No:	**SCMU8-22/23-0063**

	The Conditions of Contract are clauses 1 to 42 of the **JBCC Series 2000 Principal Building Agreement (Edition 4.1 of March 2005)** prepared by the Joint Building Contracts Committee. Copies of these conditions of contract may be obtained from most regional offices of the Association of South African Quantity Surveyors, Master Builders Association, South African Association of Consulting Engineers, South African Institute of Architects, Association of Construction Project Managers, Building Industries Federation South Africa, South African Property Owners Association or Specialist Engineering Contractors Committee.

	CONTRACT VARIABLES **THE SCHEDULE** The **schedule** contains all variables referred to in this document and is divided into part 1: contract data completed by the **employer** and part 2: contract data completed by the **contractor.** Part 1 must be completed in full and included in the tender documents. Both part 1 and part 2 form part of this **agreement** Spaces requiring information must be filled in, shown as 'not applicable' or deleted but not left blank. Where choices are offered, the non-applicable items are to be deleted. Where insufficient space is provided the information should be annexed hereto and cross-referenced to the applicable clause of the **schedule**. Key cross reference clauses are italicised in [ ] brackets

42.0	**Part 1: Contract Data completed by the Employer**

42.1	**CONTRACTING AND OTHER PARTIES**
42.1.1 [1.2]	**Employer:** Department of Rural Development and Agrarian Reform **Postal address:** UIF Building, Cnr Phalo and Rharhabe Road BHISHO 5605 **Tel:** 040 605 5263 **Email:** nosibusiso.minya@drdar.gov.za

	Physical address: UIF Building, Cnr Phalo and Rharhabe Road BHISHO 5605
42.1.2 [1.1, 5.1]	**Principal Agent** Intsika Architects **Postal address:** 1st Floor, Leadwood House, Cedarsquare Bonza Bay Road, Beacon Bay EAST LONDON 5241 **Tel:** 043 748 2949 **Fax:** 043 748 1702
42.1.3 [1.1, 5.2]	**Agent (1)** Intsika Architects **Agent's service:** Architects **Postal address:** 1st Floor, Leadwood House, Cedarsquare Bonza Bay Road, Beacon Bay EAST LONDON **Tel:** 043 748 2949 **Fax:** 043 748 1702
42.1.4 [1.1, 5.2]	**Agent (2)** Bisiwe Van Niekerk Quantity Surveyors A**gent's service:** Quantity Surveyors **Postal address:** P.O. Box 15546 Beacon Bay EAST LONDON 5205 **Tel:** 043 721 1043/4 **Fax:** 043 721 1239
42.1.5 [1.1, 5.2]	**Agent (3)** BVI Engineers (Border) **Agent's service:** Civil & Structural Engineers **Postal address:** St Helena Road, Beacon Bay North EAST LONDON 5241 **Tel:** 043 722 2738 **Fax:** 043 747 7698
42.1.6 [1.1, 5.2]	**Agent (4)** BVI Engineers (Border) **Agent's service:** Electrical & Mechanical Engineers **Postal address:** St Helena Road, Beacon Bay North EAST LONDON 5241 **Tel:** 043 722 2738 **Fax:** 043 747 7698
42.1.7 [1.1, 5.2]	**Agent (5)** **Agent's service: -** **Postal address: -** **Tel:** - **Fax:** -
42.1.8 [1.1, 5.2]	**Agent (6)** **Agent's service: -** **Postal address: -** **Tel:** - **Fax:** -

42.1.9 [1.1, 5.2]	**Agent (7)** **Agent's service: -** **Postal address: -** **Tel:** - **Fax:** -
42.2	**CONTRACT DETAILS**
42.2.1 [1.1]	**Works** description: Refer to document C3 – Scope of Work.
42.2.2 [1.1]	**Site** description: Refer to document C4 – Site Information.
42.2.4 [41.0]	Specific options that are applicable to a State organ only Where so :
[1.1.#] [31.11.2 #] [31.12.2.#]	1) Interest rate legislation: The interest rate applicable will be 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)
[11.2.#]	2) Lateral support insurance to be effected by the **Contractor**: Yes ☐ No ☒
[31.4.2 #]	3) Payment will be made for materials & goods: Yes ☒ No ☐
[40.2.2.#]	4) Dispute resolution by litigation Yes ☒ No ☐
[26.1.2 #]	5) Extended **defects** liability period applicable to the following elements: **3 Months except for Electrical & Mechanical Works which shall have a Twelve (12) Month Defects Liability Period**
42.2.6 [15.3]	Period for the commencement of the **works** after the **contractor** takes possession of the **site**: Ten (10) **working days.**
42.2.7 [24.3.1] [30.1]	For the **works** as a whole: The date for **Practical Completion** shall be **12 Months** from the **commencement date** and the penalty per **calendar day** shall be **R 5100.00** per day.
42.2.8 [24.3.1] [28.1]	For the **works** in sections: - **N/A** The date for **practical completion** from the **commencement date** and the **penalty** per **calendar day**: Section 1: ***Insert description as may be applicable – N/A*** Section 2: ***Insert description as may be applicable – N/A*** Section 3: ***Insert description as may be applicable – N/A***
42.2.9 [1.2]	The **law** applicable to this **agreement** shall be that of the: **Republic of South Africa**

42.3	INSURANCES
42.3.1 [10.1 #, 10.2 # 12.1 #]	Contract **works** insurance to be effected by the **Contractor** ☒ To the minimum value of the **contract sum** plus 10% With a deductible not exceeding 5% of each and every claim Or ☐ For the minimum sum of **R …… (insert amount in words)** With a deductible not exceeding 5% of each and every claim
42.3.2 [10.1#, 10.2 #, 12.1 #]	Supplementary insurance is required: **Yes** To the minimum value of the **contract sum** plus 10 %
42.3.3 [11.1#, 12.1 #]	Public liability insurance to be effected by the **Contractor** ☒ For the sum of R 5 million With a deductible not exceeding 5% of each and every claim **Or** ☐ For the sum of **R …… (insert amount in words)** With a deductible not exceeding 5% of each and every claim

42.3.4 [11.2 #, 12.1 #]	Support insurance to be effected by the **contractor: Not applicable** For the sum of **R …… (insert amount in words)** With a deductible of **R …… (insert amount in words)**

42.4	DOCUMENTS
42.4.2 [3.7]	Three (3) copies of the construction documents will be supplied to the **Contractor** free of charge
42.4.3	**Bills of quantities** / **Lump sum document** schedule of rates drawn up in accordance with: ☒ Standard System of Measuring Building Work (sixth edition as amended) Or ☐ Standard System of Measuring Building Work for Small or Simple Buildings 1999 Or ☐ Other (specify)
42.4.5 [3.4]	**JBCC** Engineering General Conditions are to be included in the **contract documents: No**

42.4.6 [31.5.3] [32.13]	The **contract value** is to be adjusted using **CPAP** indices : **Yes** ☒ **No** ☐ Where **CPAP** is applicable, the **contract sum** will be adjusted in accordance with the **JBCC** Contract Price Adjustment Provisions **(CPAP)** as set out in the **CPAP** Indices Application Manual as prepared by the **JBCC** Series 2000, code 2118, dated May 2005 and any amendments thereto: 1) Glass etc. measured in specialist section Metalwork, will be adjusted in terms of the index for that work group unless specifically stated otherwise in the bills of quantities 2) All electrical installations in buildings and power distribution systems shall be adjusted in terms of the index for Work Group 160 Electrical Installation. In case of uninterruptible power supplies, elevators, escalators and hoists, generating sets, motor-alternator sets and intercommunication systems shall be in accordance with Work Group 170 3) With reference to Work Group 190 a proportion of the value related preliminaries pro rata to the amount of work excluded from adjustment, shall be excluded from Contract Price Adjustment Provisions, if Option A has been selected for the adjustment of preliminaries 4) Further to clause 3.4.4 of the CPAP Indices Application Manual, the listing of additional items for exclusion by tenderers, will not be permitted 5) Where V results in a negative amount after application of the formula in clause 8.3 of the CPAP Indices Application Manual the factor of 0,55 shall be substituted by 1,45 Alternative Indices: **Not Applicable**
42.4.7 [3.10]	Details of changes made to the provisions of **JBCC** standard documentation **Clause** 1.1 **COMMENCEMENT DATE** – means the date that the **agreement**, made in terms of the Form of Offer and Acceptance, comes into effect **CONSTRUCTION GUARANTEE** – means a guarantee at call obtained by the **contractor** from an institution approved by the **employer** in terms of the **employer's** construction guarantee form as selected in the **schedule.** **CONSTRUCTION PERIOD** – means the period commencing on the **commencement date** and ending on the date of **practical completion** **CORRUPT PRACTICE** – means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. **FRAUDULENT PRACTICE** – means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any tenderer, and includes collusive practice among tenderers (prior to and after the tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the tenderer of the benefits of free and open competition. **INTEREST** – the interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be the 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) **PRINCIPAL AGENT** – means the person or entity appointed by the **employer** and named in the **schedule**. In the event of a **principal agent** not being appointed, then all the duties

and obligations of a **principal agent** as detailed in the **agreement** shall be fulfilled by a representative of the **employer** as named in the **schedule**

SECURITY – means the form of **security** provided by the **employer** or **contractor**, as stated in the **schedule**, from which the **contractor** or **employer** may recover expenses or loss.

1.6 Any notice given may be delivered by hand, sent by prepaid registered post or telefax. Notice shall be presumed to have been given when:

1.6.4 No clause

3.2.1 A **construction guarantee** in terms of 14.0, where so elected in his tender

3.7 Add at the end thereof:

The **contractor** shall supply and keep a copy of the **JBCC** Series 2000 Principal Building Agreement and Preliminaries applicable to this contract on the **site,** to which the **employer, principal agent** and **agents** shall have access to at all times.

3.10 Replace the second reference to "**principal agent**" with the word "**employer**"

4.3 No clause

5.1.2 under clause 41- Include reference to 32.6.3; 34.3 and 34.4 in terms of which the **employer** has retained its authority and has not given a mandate to the **principal agent** and in terms of which the **employer** shall sign all documents

10.5 Add the following as 10.5

Damage to the works

a) Without in any way limiting the **contractor's** obligations in terms of the contract, the **contractor** shall bear the full risk of damage to and/or destruction of the **works** by whatever cause during construction of the **works** and hereby indemnifies and holds harmless the **employer** against any such damage. The **contractor** shall take such precautions and **security** measures and other steps for the protection and **security** of the **works** as the **contractor** may deem necessary

b) The **contractor** shall at all times proceed immediately to remove or dispose of any debris arising from damage to or destruction of the **works** and to rebuild, restore, replace and/or repair the **works**

c) The **employer** shall carry the risk of damage to or destruction of the **works** and materials paid for by the **employer** that is the result of the excepted risks as set out in 10.6

d) Where the **employer** bears the risk in terms of this contract, the **contractor** shall, if requested to do so, reinstate any damage or destroyed portions of the **works** and the costs of such reinstatement shall be measured and valued in terms of 32.0 hereof

10.6 Add the following as 10.6

Injury to Persons or loss of or damage to Properties

a) The **contractor** shall be liable for and hereby indemnifies the **employer** against any liability, loss, claim or proceeding whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever arising out

of or in the course of or caused by the execution of the **works** unless due to any act or neglect of any person for whose actions the **employer** is legally liable

b) The **contractor** shall be liable for and hereby indemnifies the **employer** against any liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable or personal property or property contiguous to the **site**, whether belonging to or under the control of the **employer** or any other body or person, arising out of or in the course of or by reason of the execution of the **works** unless due to any act or neglect of any person for whose actions the **employer** is legally liable

c) The **contractor** shall upon receiving a contract instruction from the **principal agent** cause the same to be made good in a perfect and workmanlike manner at his own cost and in default thereof the **employer** shall be entitled to cause it to be made good and to recover the cost thereof from the **contractor** or to deduct the same from amounts due to the **contractor**.

d) The **contractor** shall be responsible for the protection and safety of such portions of the premises placed under his control by the **employer** for the purpose of executing the **works** until the issue of the **certificate of practical completion.**

e) Where the execution of the **works** involves the risk of removal of or interference with support to adjoining properties including land or structures or any structures to be altered or added to, the **contractor**, shall and will remain adequately insured or insured against the death of or injury to persons or damage to such property consequent on such removal or interference with the support until such portion of the **works** has been completed

f) The **contractor** shall at all times proceed immediately at his own cost to remove or dispose of any debris and to rebuild, restore, replace and/or repair such property and to execute the **works**

10.7 Add the following as 10.7

HIGH RISK INSURANCE

In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable subsurface conditions that might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply:

10.7.1 **Damage to the works**

The **contractor** shall, from the **commencement date** of the **works** until the date of the **certificate of practical completion**, bear the full risk of and hereby indemnifies and holds harmless the **employer** against any damage to and/or destruction of the **works** consequent upon a catastrophic ground movement as mentioned above. The **contractor s**hall take such precautions and **security** measures and other steps for the protection of the **works** as he may deem necessary

When so instructed to do so by the **principal agent**, the **contractor** shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the **works** and to rebuild, restore, replace and/or repair the **works**, at the **contractor's** own costs

10.7.2 **Injury to persons or loss of or damage to property**

The **contractor** shall be liable for and hereby indemnifies and holds harmless the **employer** against any liability, loss, claim or proceeding arising at any time during the period of the contract whether arising in common law or by statute, consequent upon

personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above

The **contractor** shall be liable for and hereby indemnifies the **employer** against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable or personal property or property contiguous to the site, whether belonging to or under the control of the **employer** or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of the contract

10.7.3 It is the responsibility of the **contractor** to ensure that he has adequate insurance to cover his risk and liability as mentioned in 10.7.1 and 10.7.2. Without limiting the **contractor's** obligations in terms of the contract, the **contractor** shall, within twenty one (21) **calendar days** of the c**ommencement date** but before commencement of the **works**, submit to the **employer** proof of such insurance policy, if requested to do so

10.7.4 The **employer** shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred consequent upon the **contractor's** default of his obligations as set out in 10.7.1; 10.7.2 and 10.7.3. Such losses or damages may be recovered from the **contractor** or by deducting the same from any amounts still due under this contract or under any other contract presently or hereafter existing between the **employer** and the **contractor** and for this purpose all these contracts shall be considered one indivisible whole

14.0 Replace the entire clause 14.0 with the following:

14.0 SECURITY

14.1 In respect of contracts with a **contract sum** up to R1 million, the **security** to be provided by the **contractor** to the **employer** will be a payment reduction of five per cent (5%) of the value certified in the **payment certificate** (excluding VAT)

14.1.1 The payment reduction of the value certified in a **payment certificate** shall be *mutatis mutandi* in terms of 31.8(A)

14.1.2 The **employer** shall be entitled to recover expense and loss from the payment reduction in terms of 33.0 provided that the **employer** complies with the provisions of 33.4 in which event the **employer's** entitlement shall take precedence over his obligations to refund the payment reduction **security** or portions thereof to the **contractor**

14.2 In respect of contracts with a **contract sum** above R1 million, the **contractor** shall have the right to select the **security** to be provided in terms of 14.3, 14.4, 14.5, 14.6, or 14.7 as stated in the **schedule**. Such **security** shall be provided to the **employer** within twenty one (21) **calendar days** from **commencement date**. Should the **contractor** fail to select the **security** to be provided or should the **contractor** fail to provide the **employer** with the selected **security** within twenty-one (21) **calendar days** from **commencement date**, the **security** in terms of 14.7 shall be deemed to have been selected.

14.3 Where the **security** as a cash deposit of ten per cent (10%) of the **contract sum** (excluding VAT) has been selected:

14.3.1 The **contractor** shall furnish the **employer** with a cash deposit equal in value to ten per cent (10%) of the **contract sum** (excluding VAT) within twenty-one (21) **calendar days** from **commencement date**

14.3.2 Within twenty-one (21) **calendar days** of the date of **practical completion** of the **works** the **employer** shall reduce the cash deposit to an amount equal to three per cent (3%) of

	the **contract value** (excluding VAT), and refund the balance to the **contractor** 14.3.3 Within twenty-one (21) **calendar days** of the date of **final completion** of the **works** the **employer** shall reduce the cash deposit to an amount equal to one per cent (1%) of the **contract value** (excluding VAT) and refund the balance to the **contractor** 14.3.4 On the date of payment of the amount in the final **payment certificate**, the **employer** shall refund the remainder of the cash deposit to the **contractor** 14.3.5 The **employer** shall be entitled to recover expense and loss from the cash deposit in terms of 33.0 provided that the **employer** complies with the provisions of 33.4 in which event the **employer's** entitlement shall take precedence over his obligations to refund the cash deposit **security** or portions thereof to the **contractor** 14.3.6 The parties expressly agree that neither the **employer** nor the **contractor** shall be entitled to cede the rights to the deposit to any third party 14.4 Where **security** as a variable **construction guarantee** of ten percent (10%) of the **contract sum** (excluding VAT) has been selected: 14.4.1 The **contractor** shall furnish the **employer** with an acceptable variable **construction guarantee** equal in value to ten per cent (10%) of the **contract sum** (excluding VAT) within twenty-one (21) **calendar days** from **commencement date** 14.4.2 The variable **construction guarantee** shall reduce and expire in terms of the Variable **Construction Guarantee** form included in the invitation to tender 14.4.3 The **employer** shall return the variable **construction guarantee** to the **contractor** within fourteen (14) **calendar days** of it expiring 14.4.4 Where the **employer** has a right of recovery against the **contractor** in terms of 33.0, the **employer** shall issue a written demand in terms of the variable **construction guarantee** 14.5 Where **security** as a fixed **construction guarantee** of five per cent (5%) of the **contract sum** (excluding VAT) and a five per cent (5%) payment reduction of the value certified in the **payment certificate** (excluding VAT) has been selected: 14.5.1 The **contractor** shall furnish a fixed **construction guarantee** to the **employer** equal in value to five per cent (5%) of the **contract sum** (excluding VAT) 14.5.2 The fixed **construction guarantee** shall come into force on the date of issue and shall expire on the date of the last certificate of **practical completion** 14.5.3 The **employer** shall return the fixed **construction guarantee** to the **contractor** within fourteen (14) **calendar days** of it expiring 14.5.4 The payment reduction of the value certified in a **payment certificate** shall be in terms of 31.8(A) and 34.8 14.5.5 Where the **employer** has a right of recovery against the **contractor** in terms of 33.0, the **employer** shall be entitled to issue a written demand in terms of the fixed **construction guarantee** or may recover from the payment reduction or may do both 14.6 Where **security** as a cash deposit of five per cent (5%) of the **contract sum** (excluding VAT) and a payment reduction of five per cent (5%) of the value certified in the **payment certificate** (excluding VAT) has been selected: 14.6.1 The **contractor** shall furnish the **employer** with a cash deposit equal in value to five per

	cent (5%) of the **contract sum** (excluding VAT) within twenty-one (21) **calendar days** from **commencement date** 14.6.2 Within twenty-one (21) **calendar days** of the date of **practical completion** of the **works** the **employer** shall refund the cash deposit in total to the **contractor** 14.6.3 The payment reduction of the value certified in a **payment certificate** shall be *mutatis mutandi* in terms of 31.8(A) 14.6.4 Where the **employer** has a right of recovery against the **contractor** in terms of 33.0, the **employer** may issue a written notice in terms of 33.4 or may recover from the payment reduction or may do both 14.7 Where **security** as a payment reduction of ten per cent (10%) of the value certified in the **payment certificate** (excluding VAT) has been selected: 14.7.1 The payment reduction of the value certified in a **payment certificate** shall be *mutatis mutandi* in terms of 31.8(B) 14.7.2 The **employer** shall be entitled to recover expense and loss from the payment reduction in terms of 33.0 provided that the **employer** complies with the provisions of 33.4 in which event the **employer's** entitlement shall take precedence over his obligations to refund the payment reduction or portions thereof to the **contractor** 14.8 Payments made by the guarantor to the **employer** in terms of the fixed or variable **construction guarantee** shall not prejudice the rights of the **employer** or **contractor** in terms of this **agreement** 14.9 Should the **contractor** fail to furnish the **security** in terms of 14.2 the **employer**, in his sole discretion, and without notification to the **contractor**, is entitled to change the **contractor's** selected form of **security** to that of a ten per cent (10%) payment reduction of the value certified in the **payment certificate** (excluding VAT), whereafter 14.7 shall be applicable 15.1.1 No clause 15.1.2 The **security** selected in terms of 14.0 15.1.4 Add 15.1.4 as follows: An acceptable health and safety plan, required in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), within twenty-one (21) calendar days of **commencement date** 15.2.1 Under 41: Amend to read as follows: "Give the **contractor** possession of the site within ten (10) working days of the **contractor** complying with the terms of 15.1.2 and 15.1.4 17.1.11 Delete the words "and the appointment of **nominated** and **selected subcontractors**" 20.1.3 No Clause 21.0 No clause 26.1.2 Add # next to 26.1.2 29.2.5 No clause

31.5.2 Security adjustments in terms of 14.0 or 31.8

31.8 Amend as follows:

31.8(A) Where a **security** is selected in terms of 14.1; 14.5 or 14.6, the value of the **works** in terms of 31.4.1 and of the **materials and goods** in terms of 31.4.2 shall be certified in full. The value certified shall be subject to the following percentage adjustments:

31.8(A).1 Ninety-five per cent (95%) of such value in interim **payment certificates** issued up to the date of **practical completion**

31.8.(A).2 Ninety-seven per cent (97%) of such value in interim **payment certificates** issued on the date of **practical completion** and up to but excluding the date of **final completion**

31.8(A).3 Ninety-nine per cent (99%) of such value in interim **payment certificates** issued on the date of **final completion** and up to but excluding the final **payment certificate** in terms of 34.6

31.8(A).4 One hundred per cent (100%) of such value in the final **payment certificate** in terms of 34.6 except where the amount certified is in favour of the **employer**. In such an event the payment reduction shall remain at the adjustment level applicable to the final **payment certificate**.

31.8(B) Where security is a payment reduction in term of 14.7 has been selected the value of the **works** in terms of 31.4.1 and **materials and goods** in terms of 31.4.2 shall be certified in full. The value certified shall be subject to the following percentage adjustments:

31.8(B).1 Ninety per cent (90%) of such value in interim **payment certificates** issued up to the date of **practical completion**

31.8(B).2 Ninety-seven per cent (97%) of such value in interim **payment certificates** issued on the date of **practical completion** and up to but excluding the date of **final completion**

31.8(B).3 Ninety-nine per cent (99%) of such value in interim **payment certificates** issued on the date of **final completion** and up to but excluding the final **payment certificate** in terms of 34.6

31.8(B).4 One hundred per cent (100%) of such value in the final **payment certificate** in terms of 34.6 except were the amount certified is in favour of the **employer**. In such an event the payment reduction shall remain at the adjustment level applicable to the final **payment certificate**

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

32.5.1 Add the following to the end of each of these clauses: “…due to no fault of the
32.5.4 **contractor**”
and
32.5.7

34.1 Remove #

34.2 Add # next to 34.2

	34.8 The **principal agent** shall certify one hundred per cent (100%) of the amount of the **final account** in the **final payment certificate** 34.13 Replace "seven (7) calendar days" with "twenty one (21) **calendar days**" and delete the words: "subject to the **employer** giving the **contractor** a tax invoice for the amount due" 36.1 Add the following clauses 36.1.3 to 36.1.5. under 36.1 to read as follows: 36.1.3 refuses or neglects to comply strictly with any of the conditions of contract 36.1.4 estate being sequestrated; liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa 36.1.5 in the judgement of the **employer**, has engaged in **corrupt** or **fraudulent practices** in competing for or in executing the contract 36.3 Remove reference to "No clause", and replace "**principal agent**" with "**employer**" 36.7 Add the following: "Notwithstanding any clause to the contrary, on cancellation of 37.5 this agreement either by the **employer** or the **contractor**; or for any reason and whatsoever, the **contractor** shall on written instruction, discontinue with the 38.7 **works** on a date stated 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" 37.3.5 Replace "ninety (90)" with "one hundred and twenty (120) and 38.5.4 39.3.5 Add the following words at the end thereof: :"within one hundred and twenty (120) **working days** of completion of such report" 40.2.2 under clause 41 – Replace "one (1) year" with "three (3) years" 40.6 under clause 41 – Remove reference to no clause 40.7.1 Change "(10)" to "(15)" Add the following to the end thereof: Whether or not mediation resolves the dispute, the parties shall bear their own costs concerning the mediation and equally share the costs of the **mediator** and related costs.

42.0	**Part 2: Contract Data provided by the Contractor:**
	POST-TENDER INFORMATION **Note: All information for this section requires consultation with the contractor. The principal agent shall not pre-select any of the alternatives available to the contractor**
42.5	**CONTRACT DETAILS**
42.5.1	**Contractor**: …… Postal address: …… …… …… Tel: …… Fax: …… E-mail: …… TAX / VAT Registration No: …… Physical address: …….. …….. ……..
42.5.2	The accepted **contract sum** inclusive of tax is **R** …….. Amount in words: …… …….... …….....
42.5.3 [31.3]	The latest day of the month for the issue of an interim **payment certificate:** ……
42.5.4 [32.12]	The preliminaries amounts shall be paid in terms of: **Alternative A** ☐ **Alternative B** ☐
42.5.5 [32.12]	The preliminaries amounts shall be adjusted in terms of: **Alternative A** ☐ **Alternative B** ☐
42.5.7 [14]	The **security** to be provided by the **contractor**:

	(a) in respect of contracts up to R1 million, the **contractor** will provide security in terms of 14.1 (b) in respect of contracts above R1 million, the **contractor** will provide, as **security**, one of the following: (1) cash deposit of 10 % of the **contract sum** (excluding VAT) **Yes** ☐ **No** ☐ (2) variable **construction guarantee** of 10 % of the **contract sum** (excluding VAT) (DPW-10.3 EC) **Yes** ☐ **No** ☐ (3) payment reduction of 10% of the value certified in the **payment certificate** (excluding VAT) **Yes** ☐ **No** ☐ (4) cash deposit of 5% of the **contract sum** (excluding. VAT) and a payment reduction of 5% of the value certified in the **payment certificate** (excluding. VAT) **Yes** ☐ **No** ☐ (5) fixed **construction guarantee** of 5% of the **contract sum** (excluding VAT) and a payment reduction of 5% of the value certified in the **payment certificate** (excluding VAT) (DPW-10.1 EC) **Yes** ☐ **No** ☐ **NB. Guarantees submitted must be issued by either an insurance company duly registered in terms of the Short-Term Insurance Act, 1998 (Act 35 of 1998) or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.**
42.5.8 [29.7.2]	The annual building holiday period after the commencement of the construction period: From: …… to ……

42.6 42.6.1	**DOCUMENTS** **Contract documents** marked and annexed hereto:

Priced bills of quantities:	**Yes** ☐ **No** ☐	Document marked as ……..
Lump sum document:	**Yes** ☐ **No** ☐	Document marked as ……..
Guarantees:	**Yes** ☐ **No** ☐	Document marked as ……..
Contract drawings:	**Yes** ☐ **No** ☐	Document marked as …….
Other documents …… ……	**Yes** ☐ **No** ☐ …… ……	(attach additional pages if more space is required …… ……

C 1.2 OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT NO. 85 OF 1993

THIS AGREEMENT is made between .....

……

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

.....

in his capacity as: .....

AND:

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

.....

in his capacity as: .....

duly authorised to sign on behalf of the Contractor.

WHEREAS the CONTRACTOR is the Mandatory of the EMPLOYER in consequence of an agreement between the CONTRACTOR and the EMPLOYER in respect of
CONTRACT No.: **SCMU8-22/23-0063**

for the construction, completion and maintenance of the works;

NOW THEREFORE the parties agree as follows:

1. **The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.**

2. The CONTRACTOR undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations: Provided that should the EMPLOYER have prescribed certain arrangements and procedures that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.

3. The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations, and the CONTRACTOR expressly absolves the EMPLOYER and the Employer's CONSULTING EMPLOYER'S AGENTS from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the contract.

4. 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 more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.

5. The CONTRACTOR shall be obliged to report forthwith to the EMPLOYER any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to

work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

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

on this day ..... day of ..... 20_____

SIGNATURE: .....

NAME AND SURNAME: .....

CAPACITY: .....

WITNESS: 1. .....……..

2. .....

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

on this day ..... day of ..... 20_____

SIGNATURE: .....

NAME AND SURNAME: .....

CAPACITY: .....

WITNESS: 1. .....

2. …….

C 1.3 FORM OF GUARANTEE

FIXED CONSTRUCTION GUARANTEE - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 4.1 of March 2005)

Director-General
Department of Rural Development and Agrarian Reform
Government of the Republic of South Africa
To: REGIONAL MANAGER
UIF Building, Cnr Phalo and Rharhabe Road
BHISHO
5605

Sir,

FIXED CONSTRUCTION GUARANTEE FOR THE EXECUTION OF A CONTRACT IN TERMS OF JBCC 2000 (4.1 EDITION MARCH 2005)

1. With reference to the contract between _____ _____ _____(hereinafter referred to as the "**contractor**") and the Government of the Republic of South Africa in its Department of Rural Development and Agrarian Reform (hereinafter referred to as the "**employer**"), Contract/Tender No: SCMU8-22/23-0063, for the CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE (hereinafter referred to as the "contract") in the amount of
R……**,**

(……***),***
(hereinafter referred to as the **contract sum**)**,**

I / We, _____

in my/our capacity as _____and hereby

representing _____ (hereinafter referred to as the "**guarantor**") advise that the **guarantor** holds at the **employer's** disposal the sum of
R……**,**
(……**.)**
being 5**%** of the **contract sum** (excluding VAT), for the due fulfillment of the contract.

2. The **guarantor** hereby renounces the benefits of the exceptions *non numeratae pecunia; non causa debiti; excussionis et divisionis;* and *de duobus vel pluribus reis debendi* which could be pleaded against the enforcement of this guarantee, with the meaning and effect whereof I/we declare myself/ourselves to be conversant, and undertake to pay the **employer** the amount guaranteed, on receipt of a written demand from the **employer** to do so, stating that the **employer** has a right of recovery against the **contractor** in terms of 33.0 of the contract.

3. Subject to the above, but without in any way detracting from the **employer's** rights to adopt any of the procedures provided for in the contract, the said demand can be made by the **employer**, at any stage prior to the expiry of this guarantee.

4. The amount paid by the **guarantor** in terms of this guarantee may be retained by the **employer** on condition that upon the issue of the last final **payment certificate**, the **employer** shall account to the **guarantor** showing how this amount has been expended and refund any balance due to the **guarantor**.

5. 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 on account of any conduct alleged to be prejudicial to the **guarantor**. Without derogating from the aforegoing, any compromise, extension of the **construction period**, indulgence, release or variation of the **contractor's** obligation shall not affect the validity of this guarantee.
6. The **guarantor** reserves the right to withdraw from this guarantee at any time by depositing the guaranteed amount with the **employer**, whereupon the guarantor's liability ceases.

7. This guarantee is neither negotiable nor transferable, and

   (a) must be surrendered to the **guarantor** at the time when the **employer** accounts to the **guarantor** in terms of clause 4 above, or
   (b) shall lapse on the date of the last **certificate of practical completion**.

8. This guarantee shall not be interpreted as extending the **guarantor's** liability to anything more than payment of the amount guaranteed.

SIGNED AT _____ON THIS _____ DAY OF

_____ 20____

AS WITNESS

1. _____

2. _____

_____

By and on behalf of

_____

_____

_____

(insert the name and physical address of the guarantor)

NAME: _____

CAPACITY: _____
(duly authorised thereto by resolution attached marked Annexure A)

DATE: _____

A. No alterations and/or additions of the wording of this form will be accepted.

B. The physical address of the guarantor must be clearly indicated and will be regarded as the guarantor's *domicilium citandi et executandi,* for all purposes arising from this guarantee.

C. This GUARANTEE must be returned to: _____

_____

VARIABLE CONSTRUCTION GUARANTEE - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 4.1 of March 2005)

Director-General
Department of Rural Development and Agrarian Reform
Government of the Republic of South Africa
To: REGIONAL MANAGER
UIF Building, Cnr Phalo and Rharhabe Road
BHISHO
5605

Sir,

VARIABLE CONSTRUCTION GUARANTEE FOR THE EXECUTION OF A CONTRACT IN TERMS OF JBCC 2000 (4.1 EDITION MARCH 2005)

1. With reference to the contract between _____

_____ _____(hereinafter referred to as the "**contractor**") and the Government of the Republic of South Africa in its Department of Rural Development and Agrarian Reform (hereinafter referred to as the "**employer**"), Contract/Tender No: SCMU8-22/23-0063, for the CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE (hereinafter referred to as the "contract") in the amount of

R ***……*****,**
(……***),***
(hereinafter referred to as the **contract sum**)**,**

I / We, _____
in my/our capacity as _____and hereby representing _____ (hereinafter referred to as the "**guarantor**") advise that the **guarantor** holds at the **employer's** disposal the sum of
R**.....,**
(.....)
being 10**%** of the **contract sum** (excluding VAT), for the due fulfillment of the contract.

2. I / We advise that the **guarantor's** liability in terms of this guarantee shall be as follows:

(a) From and including the date on which this guarantee is issued and up to and including the date of payment of the amount in the last final **payment certificate**, the **guarantor** will be liable in terms of this guarantee to the maximum amount of 10% of the **contract sum** (excluding VAT);

(b) The **guarantor's** liability shall reduce to 3 % of the **contract value** (excluding VAT) as determined at the date of the last **certificate of practical completion**, subject to such amount not exceeding 10% of the **contract sum** (excluding VAT).

(c) The **guarantor's** liability shall reduce to 1 % of the **contract value** (excluding VAT) as determined at the date of the last **certificate of final completion**, subject to such amount not exceeding 10 % of the **contract sum** (excluding VAT).

(d) This guarantee shall expire on the date of the last **final payment certificate**.

(e) The **practical completion certificate** and the **final completion certificate** referred to in this guarantee shall mean the certificates issued in terms of the contract.

3. The **guarantor** hereby renounces the benefits of the exceptions *non numeratae pecunia; non causa debiti; excussionis et divisionis;* and *de duobus vel pluribus reis debendi* which could be pleaded against the enforcement of this guarantee, with the meaning and effect whereof I/we declare myself/ourselves to be conversant, and undertake to pay the **employer** the amount guaranteed on receipt of a written demand from the **employer** to do so, stating that the **employer** has a right of recovery against the **contractor** in terms of 33.0 of the contract.

4. Subject to the above, but without in any way detracting from the **employer's** rights to adopt any of the procedures provided for in the contract, the said demand can be made by the **employer** at any stage prior to the expiry of this guarantee.

5. The amount paid by the **guarantor** in terms of this guarantee may be retained by the **employer** on condition that upon the issue of the last **final payment certificate**, the **employer** shall account to the **guarantor** showing how this amount has been expended and refund any balance due to the **guarantor**.

6. 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 on account of any conduct alleged to be prejudicial to the **guarantor**. Without derogating from the aforegoing, any compromise, extension of the construction period, indulgence, release or variation of the **contractor's** obligation shall not affect the validity of this guarantee.

7. The **guarantor** reserves the right to withdraw from this guarantee at any time by depositing the amount guaranteed with the **employer**, whereupon the **guarantor's** liability ceases.

8. This guarantee is neither negotiable nor transferable, and

   (a) must be surrendered to the **guarantor** at the time when the **employer** accounts to the **guarantor** in terms of clause 5 above, or
   (b) shall lapse in accordance with clause 2(d) above.

9. This guarantee shall not be interpreted as extending the **guarantor's** liability to anything more than the payment of the amount guaranteed.

SIGNED AT _____ON THIS _____ DAY OF

_____ 20____

AS WITNESS

1. _____

2. _____

_____

By and on behalf of

_____

_____

_____

(insert the name and physical address of the guarantor)

NAME: _____

CAPACITY: _____
(duly authorised thereto by resolution attached marked Annexure A)

DATE: _____

A. No alterations and/or additions of the wording of this form will be accepted.

B. The physical address of the guarantor must be clearly indicated and will be regarded as the guarantor's *domicilium citandi et executandi,* for all purposes arising from this guarantee.

C. This guarantee must be returned to: _____

_____

PART C2 – PRICING DATA

C 2.1 PRICING INSTRUCTIONS

C2.1 Pricing Instructions

1. Measurement and payment shall be in accordance with the relevant provisions of clause 8 of each of the SABS 1200 Standardised Specifications for Civil Engineering Construction and Standard System of Measuring Building Work 2015 referred to in the Scope of Work. The Preliminary and General items shall be measured in accordance with the provisions of SABS 1200-A, General and JBCC 4.1 March 2005 JBCC General Preliminaries.

2. The units of measurement described in the Bills of Quantities are metric units. Abbreviations used in these Bills of Quantities are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
m^2	=	square metre
m^2-pass	=	square metre-pass
m^3	=	cubic metre
m^3-km	=	cubic metre-kilometre
month	=	month
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1000 kg)
W/day	=	Work day

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

4. The prices and rates in these Bills of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.

5. It will be assumed that prices included in these 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)
6. Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items

7. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes.

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

9. Reasonable compensation will be received where no pay item appears in respect of work required in the Bills of Quantities in terms of the Contract and which is not covered in any other pay item.

10. The short descriptions of the items of payment given in these Bills of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.

11. Descriptions in the Bills of Quantities are abbreviated and comply generally with those in the SABS 1200 Standardised Specifications and The Standard System of Measuring Building Work 2015.

PART C3 - SCOPE OF WORK

C 3.1 SCOPE OF WORK

C3.1 Scope of Work

1. Scope of Work and Management

TOPIC	SUB TOPIC
DESCRIPTION OF THE WORKS	
Employer's objective	CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE IN TSOLO
Overview and extent of works	This contract entails the Construction of a 300 Seater Exam Hall with related civil works. The construction works includes the following: • Building Works: Construction of a 300 Seater Furnished Exam Hall; Foyer Area; Kitchen, Ablution facilities and Storerooms. • Civil Works: External Works which comprises of bulk earthworks for platforms, road and parking area, paved aprons, services and landscaping. • Electrical Works • Mechanical Ventilation Works • Fire Detection and Protection • Lightning Protection
Location of the works	Main Campus Tsolo Agricultural and Rural Development Institute in Tsolo, Eastern Cape Province. Refer to the GPS co-ordinates 31°17'38.00''S and 28°45'.48.00''E and locality drawings for location.
ENGINEERING	
Design + Drawings + Specifications	Design Completed and is included in tender documentation. Drawings and Specifications are available with tender documentation.
PROCUREMENT	
Preferential procurement procedures	Method 1 – Price Preference 80:20 Preference point system is applicable
Sub-contracting	Sub-contracting will be permitted. The Contractor must however indicate at tender stage which portions of the work will be sub-contracted and to whom.
CONSTRUCTION	
Works specifications	1. The standards specifications will apply, as stated in: **PW 371-A - SPECIFICATION OF MATERIALS AND METHODS TO BE USED**, 2. Applicable SANS 1200 standards for the building works. 3. Attached Project Particular Specifications will apply.
Plant and materials	1. The Employer will not provide any plant or material. 2. The Contractor shall inform the Engineer in good time, to inspect and approve the plant and materials that will be used before construction commences or on arrival of material on site. 3. Items, materials or methods to be used specified by trade names or catalogue numbers are only an indication of the quality required. Items, materials or methods of similar quality may be used with prior approval from the Architect/Engineers.

Construction equipment	1. The Employer will not provide any equipment. 2. The Contractor shall provide all suitable construction equipment necessary to complete the project.
Existing services	Care should be taken by the contractor not to damage any existing services. The Engineer shall show the position of all existing infrastructure both above ground and below ground to the Contractor and the contractor is to ensure that no excavations shall commence without consent of the Engineer.
Site establishment	1. The Employer will not provide any facilities on site. 2. The Contractor shall provide an office, storage shed, toilets, security, vehicles, labour and accommodation.
Site usage	The Contractor shall not utilize the site for any other purpose than the construction of the agreed works.
Permits and way leaves	The Contractor will negotiate all necessary permits and way leaves with the local community.
Survey control and Setting out works	The Contractor will be responsible for the survey and setting out of all construction levels. After setting out the levels the Contractor will inform the Engineer to inspect the levels before any excavation work or construction work may commence.
MANAGEMENT	
Management of the works	1. Applicable SANS 1200, SANS 10400 and 10142 standards will apply. 2. Attached generic standards will apply. 3. The standard specifications will apply, as stated in: PW 371-A - SPECIFICATION OF MATERIALS AND METHODS TO BE USED, will apply. 4. Drawings and specifications will be provided by the Employer and shall be the only acceptable drawings for the agreed works. 5. The Engineer will be available to perform inspections every day on request with early advance notice, but will perform at least one scheduled inspection per week. 6. The Contract type is measured where payments to the Contractor will be made after measurement of the work done by the Engineer according to the following payment schedule. 6.1. The Contractor shall submit invoices according to the agreed claims and the Engineer will recommend the payment. 6.2. The Engineer will inspect the work at the Contractor's request to measure the progress and determine the part payment that is due when both parties are in agreement about the claim. 6.3. All payments can include materials that are secured ON SITE under control of the Contractor. Materials on site which are not yet built into the works will compensated at 80% of the value as per the invoice from the material suppliers. 6.4. The Employer allows for monthly interim payments for the project that can be used, 1 practical and 1 final payment. 6.5. The practical completion of the construction work implies the work is complete and the beneficiaries can use the infrastructure. 6.6. The final and last payment is the retention money that will be paid after a predetermined period after all construction work is done. This is the defects liability period. 6.7. Certificates of Completion and Final Approval will be issued by the Engineer for practical and final construction completion.

	7. The Contractor shall provide the Engineer with proof that Insurance has been obtained for the contract period. 8. The Contractor shall keep a daily record of all labour related matters, weather occurrences, all incidents that influenced construction. 9. Communications between the Employer and Contractor will be in writing with copies to all stakeholders. 10. The Contractor shall be responsible for testing the works after completion to ensure compliance with the Employer's requirements. 11. The Employer will commission the works during a public handing over ceremony. 12. The Contractor shall repair all defects of workmanship and materials during the liability period.
Health and safety	1. Attached Occupational Health and Safety Specifications will apply. 2. Applicable SANS 1200, SANS 10085,SANS 10400 and 10142 standards will apply; 3. Occupational Health and Safety Act (Act No. 85 of 1993) will apply; 4. The Contractor shall appoint a person that will be responsible for health and safety issues on site and provide the Engineer with the name and credentials of this person. 5. Trained First Aider and must have a comprehensive First Aid Kit on site. 6. The Contractor shall be responsible to design and apply measures to prevent accidents or injury to any person or property during construction. 7. Fall arrest and rescue kit for working at heights. 8. Toilet facilities for contractor 9. All Covid-19 safety protocols shall be provided for and followed at all times.

C 3.2 SPECIFICATIONS
PARTICULAR AND GENERIC SPECIFICATIONS

C 3.2.1 ARCHITECTURAL SPECIFICATIONS

Specification

FOR

TSOLO AGRICULTURE & RURAL DEVELOPMENT INSTITUTE

AT

TSOLO AGRICULTURE & RURAL DEVELOPMENT INSTITUTE

FOR

RURAL DEVELOPMENT AND AGRARIAN REFORM

PROVINCE OF THE EASTERN CAPEDATE

7/19/2021

PREPARED BY

Intsika Architects (Pty) Ltd

1st Floor, Leadwood House, Cedarsquare Bonza Bay Road, East London 5241 Eastern Cape South AFrica

Phone: 043 748 2949

Fax: [None Specified]

E-Mail: cobus@intsika.com

NOTES REGARDING THIS SPECIFICATION

1. **Materials and workmanship**

Materials and workmanship shall be the best of their respective kinds. Only new and undamaged materials shall be used in the Works. Materials to be permanently installed into the works shall not be used for any temporary purposes on site. Work shall be to the approval of the Principal Agent and shall be executed in accordance with the relevant manufacturer's written recommendations and instructions.

Where materials are to be applied to substrates such as plaster or screed such substrates shall be deemed to be to the standard and quality laid down in the relevant trades and preparation of such substrates for the subsequent materials shall be based on this. Should the substrates prove to be defective the Principal Contractor shall take the necessary measures to remedy the defects at no cost to the Employer.

2. **Water**

Water shall be clear and free from injurious amounts of acids, alkalis, organic matter and other substances and shall be suitable for intended use.

3. **Meaning of terms**

The following terms appear often in the text of this specification. The meaning of these terms is important and therefore explained:

applicable standard
a national or recognised standard applicable to the works; applicable implies that the relevant standard becomes a contract document

approval
approval by the Principal Agent in writing, and is limited to visual appearance of the work, material or components. Approval does not relieve the contractor from compliance with the specification

ARP
a Recommended Practice prepared by SSA

as described
as described in the supplementary specification or relevant clauses of the Construction Specifications and Standards for Southern Africa

BS
British Standard

CKS
specifications prepared by the SABS, mainly for the procurement of products for the use of government departments

coastal region
area between the coastline and an imaginary line 30 km inland, including the entire area of jurisdiction of any local authority falling within this region

competent person
person who is qualified by virtue of his education, training, experience and contextual knowledge to make a determination regarding the performance of a building or part thereof in relation to a functional regulation or to undertake such duties as may be assigned to him in terms of these regulations, as further defined in SANS 10400

comply
meet specified standards

drawings
the drawings forming part of the contract documents, and any modification thereof or additions thereto delivered to the contractor during the execution of the works

EN
European Norm adapted by the SABS as a National Standard. (ENV is a voluntary norm)

elsewhere specified
that although a phrase appears in the specification its full specification will appear in another place in the Specification

IEC
International Electrotechnical Commission

in accordance with the manufacturer's recommendations
the manufacturer's recommendations at the time of tender. Whereas the manufacturer's recommendations are included in the supplementary preambles where appropriate, the Contractor is responsible for ascertaining the exact and complete recommendations

invoked standard
standard that is called upon for guidance in the proper execution of the works on site; an Invoked standard is not deemed a contract document; invoked implies that the relevant standard be obtained and a copy kept in the site office for reference; whether a standard is to be invoked is a decision to be taken by the specifier, depending on size, complexity and importance of the works, and on the level of sophistication of the builder

ISO
universal short name of the International Organization for Standardization, a worldwide federation of national standards bodies of which South Africa, Botswana and Zimbabwe are members and Namibia, Angola, Zambia and Mozambique are correspondent members

MOD AASHTO
an internationally accepted test to determine the density of compacted material like soil filling, expressed as a percentage of the maximum compaction of the filling at various moisture contents as determined in a laboratory

NBR
National Building Regulations

NRS
Rationalized User Specification prepared by SSA

or other approved
an alternative product submitted to the Principal Agent for approval before the close of tender. In all other cases the Principal Contractor must install for the products as specified

PIESA
Power Institute of East and Southern Africa

SABS
South African Bureau of Standards

SANS
South African National Standard

specified
as specified in a Particular Specification, on drawings, in the bills of quantities or in any other contract document relative to the proprietary material or product

specification data
data required by standards without which the specification is incomplete

suitable
capable of fulfilling or having fulfilled the intended function, or fit for its intended purpose

SSA
Standards South Africa, a division of the SABS

VC
Compulsory Specification (technical regulation) prepared by SSA

4. Units of measurement, symbols

The units of measurement are metric units as standardized by the "Système International d'Unités" (SI). The following unit symbols are used in this document:

°C	Degrees Celsius	ℓ	litre
g	Gram	m	metre
Hz	Hertz	m^2	square metre
h	Hour	m^3	cubic metre
KN	Kilonewton	mm	millimetre
KPa	Kilopascal	MPa	megapascal
KW	Kilowatt	t	tonne

5. Description of items

The description of an item implies the complete supply, assembly and operation of the item unless otherwise specified.

6. Trade names

Proprietary materials, components or products in this Specification are specified by trade name with reference to standards where relevant. Prior to tenders having been submitted and a contract concluded, tenderers may apply to the Principal Agent for the use of materials, products or components that do not comply with these standards. In these cases the Principal Agent shall expect any one or all of the following:

- A sample for inspection
- Proof of quality
- Test reports
- Capability reports on the factory

- A saving in cost

Applications for the use of substitute materials, products or components must be approved in writing by the Principal Agent before any such materials, components or products are ordered.

7. **Compliance with standards**

When so requested by the Principal Agent, provide evidence in the form of delivery slips, certificates or other written proof that material or components comply with the standards as laid down in this specification. Where possible all products must bear the mark of the relevant standards body.

8. **Standards, latest edition**

Standards referred to in this specification are the latest edition, including all amendments, published three calendar months or longer before the closing date of tenders.

9. **Accuracy of building work**

Building work must comply with SABS 0155, accuracy level 2, except where specified otherwise.

10. **Application of the NBR**

All work shall be executed in accordance with the NBR.

11. **Principal Building Agreement**

The contract forming part of the contract documentation is the latest edition of the Principal Building Agreement or Minor Works (as selected by Principal Agent to apply to this contract) as compiled by the Joint Building Contracts Committee (JBCC). Refer to this document for the full intent and meaning of each clause, as specified.

12. **Preliminaries**

The preliminaries forming part of the contract documentation is the latest edition of the preliminaries document, as compiled by the JBCC. Refer to this document for the full intent and meaning of each clause, as specified.

1 (No Location)

a) Swartland wooden doors

i) Swartland 5-year guarantee Winsters Wide Horizontal slatted door with aluminium glass insert (Code: PD611), overall size 813 x 2,032mm high.
- Door range: Winsters
- Guarantee: 5-year
- Application: Semi-exterior
- Door: Wide Horizontal slatted door with aluminium glass insert (Code: PD611)
- Door width: 813mm
- Door height: 2,032mm.

b) Union Tiles full & hard body ceramic tiles

i) Union Tiles Eco full body ceramic tiles (Code: 1ECONORBLA60X120), size 600 x 1,200mm, fixed to internal wall plaster backing with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

2 Kitchen

a) Plascon Paint to new surfaces

i) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.
- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer

- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

ii) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

b) Gyproc ceiling systems

i) Lay Gyproc Gyprex® White 1200mm x 600mm ceiling tile into the Gypframe/DONN ceiling grid. Ceiling grid consisting of Gyproc/DONN Wall Angle (SM25/M6) fixed to the perimeter wall using fixings at 300mm centres. Space Gypframe/ DONN Main Tees T38 FR at 1200mm centres. Suspend main tees using Gyproc Pre-stretched Galvanised Hanger wire 2.5mm thick or Gyproc hanger strap 19mm at 1200mm centres. Gyproc Pre-stretched Galvanised Hanger wire shall be put through the main tees hole and would wind 3 times around itself. 2 steel pop-rivets or one Gyproc Wafer-head Tek screw 13mm shall be used to fix the hanger strap to the main tees web. Install Gypframe/DONN Cross Tees T38V/T32V (1200 long) at 600mm centres to create a 1200mm x 600mm ceiling grid. Main tee should be fixed to the wall using angle cleats.

- Ceiling System: Gyproc Exposed Ceiling System Gyprex® White 1200 x 600mm
- Ceiling Grid: exposed ceiling grid.

c) Union Tiles full & hard body ceramic tiles

i) Union Tiles Lin hard body ceramic tiles (Code: 1LINCARLIG30X60), size 300 x 600mm, fixed to internal wall plaster backing with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

d) Union Tiles porcelain tiles

i) Union Tiles porcelain tiles (Code: UNM129600), size 600 x 600mm, fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

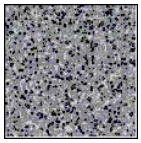
e) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.
- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

3 Equipment Store

a) a.b.e. Construction Chemicals flooring products

i) Prepare and apply a.b.e. Construction Chemicals Medium Sea Grey G24 abescreed chemical resistant epoxy screed and comprising a clear resin and activator blended with a pre-packed graded aggregate and a colour pigment including abecote 436 sealer applied as directed, all in accordance with the manufacturer's instructions.



b) Plascon Paint to new surfaces

i) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat

Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

ii) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

c) Gyproc ceiling systems

i) Lay Gyproc Gyprex® White 1200mm x 600mm ceiling tile into the Gypframe/DONN ceiling grid. Ceiling grid consisting of Gyproc/DONN Wall Angle (SM25/M6) fixed to the perimeter wall using fixings at 300mm centres. Space Gypframe/ DONN Main Tees T38 FR at 1200mm centres. Suspend main tees using Gyproc Pre-stretched Galvanised Hanger wire 2.5mm thick or Gyproc hanger strap 19mm at 1200mm centres. Gyproc Pre-stretched Galvanised Hanger wire shall be put through the main tees hole and would wind 3 times around itself. 2 steel pop-rivets or one Gyproc Wafer-head Tek screw 13mm shall be used to fix the hanger strap to the main tees web. Install Gypframe/DONN Cross Tees T38V/T32V (1200 long) at 600mm centres to create a 1200mm x 600mm ceiling grid. Main tee should be fixed to the wall using angle cleats.

- Ceiling System: Gyproc Exposed Ceiling System Gyprex® White 1200 x 600mm
- Ceiling Grid: exposed ceiling grid.

d) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.
- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

4 Multi Purpose Hall

a) a.b.e. Construction Chemicals flooring products

i) Prepare and apply a.b.e. Construction Chemicals isocrete 4000 cement-based screed including priming with Isocrete Acrylic Primer or Isocrete Aqualock DPM (where required if floor slab is above 75% RH), all in accordance with the manufacturer's instructions.

b) Plascon Paint to new surfaces

i) Plascon Cashmere to interior new rhinolite.
Surface to be dry, sound and free of dirt and loose particles. Wipe down with a damp cloth and allow to dry completely. Prime with one coat Professional Water Based Gypsum Sealer (PGS1) with an overcoating time of 1 hour and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C1 - inland environment.
- Environment : C1 - inland
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Professional Water Based Gypsum Sealer
- Overcoating time for primer/base coat : 1.00 hour
- Specification document : NW201.

ii) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

iii) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

c) Gyproc ceiling systems

i) 1 layer Gyproc RhinoBoard® 12.5mm is fixed to Gypframe UltraSTEEL® Brandering installed at maximum 600mm centres. Fix Gyproc RhinoBoard® using Gyproc Sharp-point Screws 25mm at maximum 150mm centres. All joints shall be staggered. Apply Gyproc RhinoTape® to all joints and skim the ceiling using Gyproc RhinoLite® CreteStone®. Ceiling grid consisting of Gyproc Suspension Brackets fixed to tie beam/joist using one line of 2 Gyproc Sharp-point Screws 35mm. Install Gyproc Galvanised Steel Angle 25mm x 25mm at ceiling level to the wall running perpendicular to the direction of steel brandering. Install Gypframe UltraSTEEL® Brandering onto the suspension brackets. Fix steel brandering to the galvanised steel angle using Gyproc Wafer-head Tek Screws 13mm. Install Gyproc RhinoArt Cove fixed Gyproc RhinoBed® or Gyproc RhinoArt Cornice fixed using Gyproc RhinoArt adhesive.
• Ceiling System: Gyproc Skimmed Ceiling System 12.5mm/SB
• Ceiling Grid: concealed ceiling grid.

ii) 1 layer Gyproc Acoustic Ceiling System (Boards) Gyptone BIG Line 6 (with Activ'Air®) fixed to Gypframe/DONN ceiling grid. Fix Gyptone boards using Gyproc Sharp-point Screws 25mm at maximum 150mm centres. Apply Gyproc RhinoTape® to all joints. Jointed finish and covering of the screw heads is done using Gyproc RhinoGlide®. Ceiling grid consisting of Gypframe/DONN T37K Main Tees at 1200mm centres and Gypframe/DONN T32K Cross Tees at 600mm centres. Gypframe/DONN T37K Main Tees suspended using Gyproc Galvanised Steel Angle 25mm x 25mm at 1200mm centres. Fix galvanised steel angles to Gypframe/DONN T37K Main Tees using Gyproc Wafer Head Tek Screws 13mm.
• Ceiling System: Gyproc Acoustic Ceiling System (Boards) Gyptone BIG Line 6
• Ceiling Grid: concealed ceiling grid.

d) Belgotex Residential Broadloom Carpet

i) Belgotex Conqueror colour Sword, heavy residential (SABS location grade: 3) Stainproof Miracle Fibre (Polypropylene) 5mm thick, level-loop pile MiracleBac® woven polypropylene backed SABS Class 2 fire rating broadloom carpet sheeting laid on and including Orange undercushion.

e) Polyflor Heterogeneous Vinyl Flooring

i) Polyflor 3.7mm thick Silentflor PUR Heterogeneous vinyl floor sheeting with a 0.65mm clear wear layer colour Honey Oak (Colour code: 9959), laid in an approved adhesive spread with a notched trowel on suitably prepared cement screed with a hygrometer reading showing a moisture content of less than 70%, with joints welded with a fully flexible coloured Polyflor welding rod to provide a smooth, hygienic sealed finish and rolled with 68kg articulated floor roller, all in accordance with manufacturer's recommendations.

f) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.
- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

g) Supreme mouldings - skirting profiles

i) Supreme mouldings ERP010-D skirting with Polmethyl Methacrylate wear layer, overall size 21 x 150mm high, fixed to wall with adhesive (elsewhere specified), all in accordance with the manufacturer's recommendations.

5 Foyer

a) a.b.e. Construction Chemicals flooring products

i) Prepare and apply a.b.e. Construction Chemicals isocrete 4000 cement-based screed including priming with Isocrete Acrylic Primer or Isocrete Aqualock DPM (where required if floor slab is above 75% RH), all in accordance with the manufacturer's instructions.

b) Plascon Paint to new surfaces

i) Plascon Cashmere to interior new rhinolite.

Surface to be dry, sound and free of dirt and loose particles. Wipe down with a damp cloth and allow to dry completely. Prime with one coat Professional Water Based Gypsum Sealer (PGS1) with an overcoating time of 1 hour and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C1 - inland environment.

- Environment : C1 - inland
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Professional Water Based Gypsum Sealer
- Overcoating time for primer/base coat : 1.00 hour
- Specification document : NW201.

ii) Plascon Velvaglo Water Based to interior new wood.

Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

iii) Plascon Cashmere to interior new cement plaster.

Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere

- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

c) Gyproc ceiling systems

i) 1 layer Gyproc Acoustic Ceiling System (Boards) Gyptone Rigitone® 8-15-20 Super fixed to Gypframe/DONN ceiling grid using Gyproc Sharp-point Screws 25mm at maximum 150mm centres. Finish the joints and spot the screw heads using Rigitone® Vario Joint Filler. Gypframe/DONN T37K Main Tees (0.4mm thickness, Z150 galv coating, locally manufactured, recycled content, ISO 9001 & 14001 certification) at 1200mm centres and Gypframe/DONN T32K Cross Tees at 300mm centres. Where required, install additional cross tees. Gypframe/DONN T37K Main Tees suspended using Gyproc Galvanised Steel Angle 25mm x 25mm at 1200mm centres.

- Ceiling System: Gyproc Acoustic Ceiling System (Boards) Rigitone® 8-15-20 Super
- Ceiling Grid: concealed ceiling grid.

ii) 1 layer Gyproc RhinoBoard® 12.5mm is fixed to Gypframe UltraSTEEL® Brandering installed at maximum 600mm centres. Fix Gyproc RhinoBoard® using Gyproc Sharp-point Screws 25mm at maximum 150mm centres. All joints shall be staggered. Apply Gyproc RhinoTape® to all joints and skim the ceiling using Gyproc RhinoLite® CreteStone®. Ceiling grid consisting of Gyproc Suspension Brackets fixed to tie beam/joist using one line of 2 Gyproc Sharp-point Screws 35mm. Install Gyproc Galvanised Steel Angle 25mm x 25mm at ceiling level to the wall running perpendicular to the direction of steel brandering. Install Gypframe UltraSTEEL® Brandering onto the suspension brackets. Fix steel brandering to the galvanised steel angle using Gyproc Wafer-head Tek Screws 13mm. Install Gyproc RhinoArt Cove fixed Gyproc RhinoBed® or Gyproc RhinoArt Cornice fixed using Gyproc RhinoArt adhesive.

- Ceiling System: Gyproc Skimmed Ceiling System 12.5mm/SB
- Ceiling Grid: concealed ceiling grid.

d) Belgotex Residential Broadloom Carpet

i) Belgotex Conqueror colour Sword, heavy residential (SABS location grade: 3) Stainproof Miracle Fibre (Polypropylene) 5mm thick, level-loop pile MiracleBac® woven polypropylene backed SABS Class 2 fire rating broadloom carpet sheeting laid on and including Orange undercushion.

e) Polyflor Heterogeneous Vinyl Flooring

i) Polyflor 3.7mm thick Silentflor PUR Heterogeneous vinyl floor sheeting with a 0.65mm clear wear layer colour Honey Oak (Colour code: 9959), laid in an approved adhesive spread with a notched trowel on suitably prepared cement screed with a hygrometer reading showing a moisture content of less than 70%, with joints welded with a fully flexible coloured Polyflor welding rod to provide a smooth, hygienic sealed finish and rolled with 68kg articulated floor roller, all in accordance with manufacturer's recommendations.

f) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.

- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

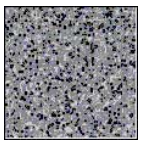
g) Supreme mouldings - skirting profiles

i) Supreme mouldings ERP010-D skirting with Polmethyl Methacrylate wear layer, overall size 21 x 150mm high, fixed to wall with adhesive (elsewhere specified), all in accordance with the manufacturer's recommendations.

6 General Store

a) a.b.e. Construction Chemicals flooring products

i) Prepare and apply a.b.e. Construction Chemicals Medium Sea Grey G24 abescreed chemical resistant epoxy screed and comprising a clear resin and activator blended with a pre-packed graded aggregate and a colour pigment including abecote 436 sealer applied as directed, all in accordance with the manufacturer's instructions.



b) Plascon Paint to new surfaces

i) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

ii) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour

- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

c) Gyproc ceiling systems

i) Lay Gyproc Gyprex® White 1200mm x 600mm ceiling tile into the Gypframe/DONN ceiling grid. Ceiling grid consisting of Gyproc/DONN Wall Angle (SM25/M6) fixed to the perimeter wall using fixings at 300mm centres. Space Gypframe/ DONN Main Tees T38 FR at 1200mm centres. Suspend main tees using Gyproc Pre-stretched Galvanised Hanger wire 2.5mm thick or Gyproc hanger strap 19mm at 1200mm centres. Gyproc Pre-stretched Galvanised Hanger wire shall be put through the main tees hole and would wind 3 times around itself. 2 steel pop-rivets or one Gyproc Wafer-head Tek screw 13mm shall be used to fix the hanger strap to the main tees web. Install Gypframe/DONN Cross Tees T38V/T32V (1200 long) at 600mm centres to create a 1200mm x 600mm ceiling grid. Main tee should be fixed to the wall using angle cleats.

- Ceiling System: Gyproc Exposed Ceiling System Gyprex® White 1200 x 600mm
- Ceiling Grid: exposed ceiling grid.

d) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.

- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

7 Female Ablution

a) Plascon Paint to new surfaces

i) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

ii) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

b) Gyproc ceiling systems

i) Lay Gyproc Gyprex® White 1200mm x 600mm ceiling tile into the Gypframe/DONN ceiling grid. Ceiling grid consisting of Gyproc/DONN Wall Angle (SM25/M6) fixed to the perimeter wall using fixings at 300mm centres. Space Gypframe/ DONN Main Tees T38 FR at 1200mm centres. Suspend main tees using Gyproc Pre-stretched Galvanised Hanger wire 2.5mm thick or Gyproc hanger strap 19mm at 1200mm centres. Gyproc Pre-stretched Galvanised Hanger

wire shall be put through the main tees hole and would wind 3 times around itself. 2 steel pop-rivets or one Gyproc Wafer-head Tek screw 13mm shall be used to fix the hanger strap to the main tees web. Install Gypframe/DONN Cross Tees T38V/T32V (1200 long) at 600mm centres to create a 1200mm x 600mm ceiling grid. Main tee should be fixed to the wall using angle cleats.

- Ceiling System: Gyproc Exposed Ceiling System Gyprex® White 1200 x 600mm
- Ceiling Grid: exposed ceiling grid.

c) Geberit concealed cisterns

i) Geberit 120mm Omega Kombifix concealed cistern for wall hung WC (Article No. 110.011.00.1), front actuated with Omega 20 dual-flush actuator (Article No. 115.085.KM.1) in black / bright chrome / black finish, including flush pipe and pan connector, water supply connection with angle stop valve, protection cover for service opening and protection cover for flush pipe, fixed with included fastening materials inside solid wall from 120mm up to 200mm. All with Geberit conditional guarantee.



d) Union Tiles full & hard body ceramic tiles

i) Union Tiles Lin hard body ceramic tiles (Code: 1LINCARLIG30X60), size 300 x 600mm, fixed to internal wall plaster backing with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

e) Union Tiles porcelain tiles

i) Union Tiles porcelain tiles (Code: UNM129600), size 600 x 600mm, fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

f) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.

- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

8 Disabled Ablution

a) Plascon Paint to new surfaces

i) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

ii) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

b) Gyproc ceiling systems

i) Lay Gyproc Gyprex® White 1200mm x 600mm ceiling tile into the Gypframe/DONN ceiling grid. Ceiling grid consisting of Gyproc/DONN Wall Angle (SM25/M6) fixed to the perimeter wall using fixings at 300mm centres. Space Gypframe/ DONN Main Tees T38 FR at 1200mm centres. Suspend main tees using Gyproc Pre-stretched Galvanised Hanger wire 2.5mm thick or Gyproc hanger strap 19mm at 1200mm centres. Gyproc Pre-stretched Galvanised Hanger wire shall be put through the main tees hole and would wind 3 times around itself. 2 steel pop-rivets or one Gyproc Wafer-head Tek screw 13mm shall be used to fix the hanger strap to the main tees web. Install Gypframe/DONN Cross Tees T38V/T32V (1200 long) at 600mm centres to create a 1200mm x 600mm ceiling grid. Main tee should be fixed to the wall using angle cleats.

- Ceiling System: Gyproc Exposed Ceiling System Gyprex® White 1200 x 600mm
- Ceiling Grid: exposed ceiling grid.

c) Geberit pneumatic duct cistern

i) Geberit pneumatic duct cistern (Article No. 110.798.00.1) including Sigma standard cover plate (Article No. 115.768.46.1) in matt chrome plated finish, with Square Design (for Sigma concealed cistern 8cm) dual-flush pneumatic actuator (Article No. 116.053.GH.1) in brushed chrome finish, to be fixed with included fastening materials, WC to be fixed using wall/cradle bracket (elsewhere specified). All with Geberit conditional guarantee.



d) Union Tiles full & hard body ceramic tiles

i) Union Tiles Lin hard body ceramic tiles (Code: 1LINCARLIG30X60), size 300 x 600mm, fixed to internal wall plaster backing with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

e) Union Tiles porcelain tiles

i) Union Tiles porcelain tiles (Code: UNM129600), size 600 x 600mm, fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with joints continuous in both directions

and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

f) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.
- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

9 Male Ablution

a) Plascon Paint to new surfaces

i) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.
- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

ii) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish

with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

b) Gyproc ceiling systems

i) Lay Gyproc Gyprex® White 1200mm x 600mm ceiling tile into the Gypframe/DONN ceiling grid. Ceiling grid consisting of Gyproc/DONN Wall Angle (SM25/M6) fixed to the perimeter wall using fixings at 300mm centres. Space Gypframe/ DONN Main Tees T38 FR at 1200mm centres. Suspend main tees using Gyproc Pre-stretched Galvanised Hanger wire 2.5mm thick or Gyproc hanger strap 19mm at 1200mm centres. Gyproc Pre-stretched Galvanised Hanger wire shall be put through the main tees hole and would wind 3 times around itself. 2 steel pop-rivets or one Gyproc Wafer-head Tek screw 13mm shall be used to fix the hanger strap to the main tees web. Install Gypframe/DONN Cross Tees T38V/T32V (1200 long) at 600mm centres to create a 1200mm x 600mm ceiling grid. Main tee should be fixed to the wall using angle cleats.

- Ceiling System: Gyproc Exposed Ceiling System Gyprex® White 1200 x 600mm
- Ceiling Grid: exposed ceiling grid.

c) Geberit concealed cisterns

i) Geberit 120mm Omega Kombifix concealed cistern for wall hung WC (Article No. 110.011.00.1), front actuated with Omega 20 dual-flush actuator (Article No. 115.085.KM.1) in black / bright chrome / black finish, including flush pipe and pan connector, water supply connection with angle stop valve, protection cover for service opening and protection cover for flush pipe, fixed with included fastening materials inside solid wall from 120mm up to 200mm. All with Geberit conditional guarantee.



d) Geberit urinals

i) Geberit wall mounted Selnova concealed control urinal colour alpine white (Article No. 500.344.01.1), overall size 360mm x 370mm x 610mm, fixed to wall with stainless steel bolts and nuts in accordance with manufacturer's recommendations.

e) Union Tiles full & hard body ceramic tiles

i) Union Tiles Lin hard body ceramic tiles (Code: 1LINCARLIG30X60), size 300 x 600mm, fixed to internal wall plaster backing with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

f) Union Tiles porcelain tiles

i) Union Tiles porcelain tiles (Code: UNM129600), size 600 x 600mm, fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

g) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.
- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

10 Interior Balcony

a) Plascon Paint to new surfaces

i) Plascon Cashmere to interior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Cashmere (CAS 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.
- Environment : C3 - industrial

- Topcoat : Cashmere
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW102r.

b) Union Tiles porcelain tiles

i) Union Tiles porcelain tiles (Code: UNM129600), size 600 x 600mm, fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

c) Isover Glasswool

i) Isover 100mm thick Factorylite non-combustible light weight fibreglass Glasswool thermal roof insulation with reinforced foil facing (Code: 12089), nominal density 12kg/m³, fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres and tied down top and bottom after tensioning with galvanized hoop iron ties with overlaps stapled together, all in accordance with manufacturer's recommendations.
- R-value: 2.56m² K/W
- Thermal conductivity: 0.039 W/m²/K.

11 Exterior Balcony

a) Plascon Paint to new surfaces

i) Plascon Wall & All to exterior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Wall & All (WAA 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.
- Environment : C3 - industrial
- Topcoat : Wall & All
- Number of coats of topcoat : two coats

- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW100r.

b) Union Tiles porcelain tiles

i) Union Tiles porcelain tiles (Code: UNM129600), size 600 x 600mm, fixed to external floor screed with TAL tile adhesive (elsewhere specified) mixed with TAL Bond® in lieu of water on concrete surface bed (elsewhere specified) to a minimum 1:50 falls in accordance with SANS 1200 D Degree of Accuracy I with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified), excess grout on the surface to be cleaned with water as work proceeds.

12 Building Exterior

a) Global Roofing Solutions concealed fix sheeting

i) Global Roofing Solutions 0.58mm thick 406mm cover Brownbuilt profile Chromadek® Z200 spelter ISQ550 Dark Dolphin finish top coat and Pebble Grey backing coat vertical cladding, fixed to steel intermediate girts at MAX 2700mm centres using Duplex clips fixed with 10No.16 x 16mm long self drilling wafer head PH2 screws, No. 3 drill point fasteners, all in accordance with the manufacturer's specifications.
- Brand: ArcelorMittal
- Climatic Condition: from 5km to inland - C3 Medium Corrosion Risk.



ii) Global Roofing Solutions 0.58mm thick 406mm cover Brownbuilt profile Chromadek® Z200 spelter ISQ550 Dark Dolphin finish top coat and Pebble Grey backing coat roof sheeting, fixed to steel intermediate purlins at MAX 1800mm centres and eaves and ridge purlins at MAX 1500mm centres using Duplex clips fixed with 10No.16 x 16mm long self drilling wafer head PH2 screws, No. 3 drill point fasteners, all in accordance with the manufacturer's specifications.
- Brand: ArcelorMittal
- Climatic Condition: from 5km to inland - C3 Medium Corrosion Risk.



b) Plascon Paint to new surfaces

i) Plascon Velvaglo Water Based to interior new wood.
Surface to be dry, sound and clean. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content, measured with a Doser Hygrometer (or equivalent), of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Wood Primer (UC2) with an overcoating time of 16 hours and finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Velvaglo Water Based
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 4.00 hour
- Primer/Base coat : Wood Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW362r.

ii) Plascon Wall & All to exterior new cement plaster.
Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equivalent), of BD 2 scale - 8% or less. Prime with one coat Plascon Plaster Primer (UC56) with an overcoating time of 16 hours and finish with two coats Wall & All (WAA 1) with 2 hours drying time between coats, for a maintenance cycle of 10 years in a C3 - industrial environment.

- Environment : C3 - industrial
- Topcoat : Wall & All
- Number of coats of topcoat : two coats
- Overcoating time for topcoat : 2.00 hour
- Primer/Base coat : Plascon Plaster Primer
- Overcoating time for primer/base coat : 16.00 hour
- Specification document : NW100r.

c) Inca Concrete Products block paving

i) Inca Concrete Products Interlock Weathered Charcoal coloured paving blocks, size 200 x 100 x 80mm thick, laid in herringbone pattern in accordance with SANS 1200 MJ and CMA Concrete Block Paving Manuals, with a minimum longitudinal fall of 1% on a transverse fall of at least 2% on 25mm compacted sand bed with fine jointing sand swept and vibrated into joints, all laid on subgrade conforming to SANS 1200 D Degree Of Accuracy I. Paving to be inspected and re-sanded after three months.

d) Corobrik® Satin facebricks

i) Corobrik® Midrand 27-40MPa Firelight Imperial FBX clay face brick, size 222 x 106 x 73mm, manufactured in accordance with 227:2007, bedded and jointed in Class II mortar and pointed with recessed vertical and recessed horizontal joints, suitable for exposure zones 1-4.

e) Corobrik® Concrete paving

i) Corobrik® (KwaZulu Natal) Flagstone Charcoal S-C concrete paving brick manufactured in accordance with SANS 1058, size 440 x 440 x 40mm thick laid in Stack Bond pattern in accordance with SANS 1200 MJ and CMA Concrete Block Paving Manuals, with a minimum longitudinal fall of 1% on a transverse fall of at least 2% on 25mm compacted sand bed with fine jointing sand swept and vibrated into joints, all laid on subgrade conforming to SANS 1200 D Degree Of Accuracy I. Paving to be inspected and re-sanded after three months.

Manufacturer Contact Details

Swartland

C 3.2.2 ELECTRICAL DETAILED PROJECT SPECIFIC SPECIFICATIONS

TSOLO AGRICULTURAL & RURAL DEVELOPMENT INSTITUE

TSOLO AGRI 300-SEATER EXAM HALL

ELECTRICAL SPECIFICATION REV 00

D34435-00-E-REP-001-REV00

October 2021

PREPARED FOR:

Tsolo Agriculture & Rural Development Institute
Private Bag X1008
Tsolo
Umhlanga 5170

PREPARED BY:

BVi Consulting Engineers (Pty) Ltd
2nd Floor, Pharos House
70 Buckingham Terrace
Westville 3630

ISSUE & REVISION RECORD

QUALITY APPROVAL

	Capacity	Name	Signature	Date
By Author	Electrical Technologist	Ashley Naidoo		01-10-2021
Approved by Project Leader	Project Leader	Zola Ntshangase		04-10-2021

This report has been prepared in accordance with BVi Consulting Engineers Quality Management System. BVi Consulting Engineers is ISO 9001: 2008 registered and certified by NQA Africa.

REVISION RECORD

Revision Number	Objective	Change	Date
00	Issued to Client	N/A	15-10-2021

APPROVAL RECORD

Client	Name	Capacity	Signature	Date
TSOLO Agriculture & Rural Development Institute				

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

ASIB – Automatic Sprinkler Inspection Bureau

BS – British Standard

CD – compact disk

CFOT – Certified Fiber Optic Technician

DB – Distribution Board

DC – Direct Current

ECA – electrical Contracting Association of South Africa

ECC – Earth Continuity Conductor

EN – European Standards

FDIA – Fire Detection Installer Association

IEC – International Electrotechnical Commission

IP – Ingress Protection

ISO – International Organization for Standardization

IT – information technology

LAN – Local Area Network

LCD – Liquid Crystal Display

LED – Light-Emitting diode

MCB – Miniature Circuit Breaker

OTDR – Optical Time Domain Reflectometer

PA – Public Address

PVC – Polyvinyl Chloride

SABS - South African Bureau of Standards

SANS – South African national standards

SWA – Steel Wire Armoured

UPS – Uninterruptible Power Supply

VdS - Vertrauen durch Sicherheit

LIST OF SYMBOLS

μ - Micro

m - Metre

Ω – Ohm

Ø – Diameter

DOCUMENTS FORMING PART OF THIS SPECIFICATION

Documents forming part of this installation specification:

DOC NO.	TITLE
SCMU8-21/22-0108	Bill of Quantities

DRAWINGS FORMING PART OF THIS SPECIFICATION

Drawings forming part of this installation specification:

Table1: Drawing Register

No.	Rev.	Description
D34435.00-301-01	A	Electrical Reticulation Layout
D34435.00-312-01	A	DB Schematics Layout
D34435.00-340-01	A	Fire Detection Layout
D34435.00-350-01	A	Lightning Protection Layout
D34435.00-370-01	A	Small Power Layout (Ground Floor)
D34435.00-370-02	A	Small Power Layout (First Floor)
D34435.00-380-01	A	Electrical Lighting Layout (Ground Floor)
D34435.00-380-02	A	Electrical Lighting Layout (First Floor)
D34435.00-380-03	A	Electrical Lighting Layout (General Area)

I. SCOPE OF WORK

This specification covers the manufacture, supply, delivery, offloading, installation, testing, commissioning and handing over of all the electrical works for Tsolo Agri 300-Seater Exam Hall in Tsolo, 5170.

The attention of the Tenderer is drawn to the Bill of Quantities that forms an integral part of the specification and especially the following clauses:

Where the term “or other approved” is used in connection with proprietary materials or articles, it is to be understood that approval shall be at the sole discretion of the Engineer. Where brand or trade names are referred to in the Drawings and Bill of Quantities, these shall indicate the quality and type of material or fitting required and no substitution of materials so specified will be permitted, unless the authority of the Engineer has been obtained, in writing, before tenders close.

The drawings listed in the index form an integral part of this specification, but are issued for TENDER PURPOSES ONLY and are not intended to be used for construction without the prior written approval of the Client’s Representative.

The positioning of all equipment, light fittings, light switches, socket outlets etc. on the drawing, is schematic only and in some cases may not correspond to the actual layout of the buildings. The successful Tenderer shall be responsible for indicating the correct position of all electrical equipment on their working drawings to enable the Client’s Representative to produce “as built” drawings.

a. Work included

The successful Tenderer shall provide all labour, materials, equipment, tools and supervision to transport, assemble, erect, install, connect, test and place into service the complete electrical works. The works shall consist of, but are not limited to:

The supply and installation of new supply cables from the supply authority meter box to the main board at 40A three phase.

Supply and installation of distribution boards complete terminations and joints.

Supply and installation of light fittings, light switches and switched socket outlets.

Supply and installation of isolators and fixed appliances.

Supply and installation complete with termination of conduit, wiring earthing, etc. where required.

Supply and installation of fire detection system.

Supply and installation of earthing and lightning protection complete with earth conductors, rods and lightning arrestors.

Tenderers are to allow for ALL work and materials indicated and implied on the drawings, whether indicated in the specification or not, to deliver a complete and operational project.

b. Special Conditions

All work shall be done by an electrical contractor registered with the Electrical Contracting Association of South Africa (ECA) and Department of Labour.

The electrical contractor shall provide certified copies as proof of accreditation and registration with the ECA and Department of Labour prior to commencement at the site hand-over meeting and prior to commencement of any work.

Lightning protection soil resistivity tests, risk assessment, detail designs and installation work shall be done by a certified person and who are able to provide proof of successfully completed projects with contact details and references.

Electronic systems, detail designs and installation work shall be done by a competent certified person and who are able to provide proof of successfully completed projects with contact details and references.

Service Provider needs to be Commscope Certified.

c. Site Establishment

The successful Tenderer shall provide all the facilities required to enable him to undertake the Contract Works.

d. Standards and Codes of Practice

All installation work shall comply with the following Specifications, Legal Requirements and Codes of Practice:

Table 2: Standards and Codes of Practice

LEGISLATION, STANDARDS AND CODES OF PRACTICE – ELECTRICAL RELATED	
NUMBER	**TITLE**
OHSA	Occupation Health & Safety Act (act 85 of 1993), with Regulations included
BS 1363-2	13 A plugs, socket-outlets, adaptors and connection units – Specification for 13 A switched and un-switched socket-outlets
ISO 9001 – 9004	Quality Management Systems
ISO 3046-1	Part 1: Standard reference conditions, declarations of power, fuel and lubricating oil consumptions, and test methods
ISO 3046-3	Part 3: Test measurements
ISO 3046-4	Part 4: Speed governing
ISO 3046-5	Part 5: Torsional vibrations
ISO 3046-6	Part 6: Over speed protection
ISO 3046-7	Part 7: Codes for engine power
NRS 048-4	Quality of supply
NRS 0424-1	Diesel alternator set Part1: Diesel alternator sets for fixed installations-Preferred requirements for application their organisations by the DC and standby equipment representative user group.
SANS 10086-1	The installation, inspection and maintenance of equipment used in explosives atmospheres Part 1: Installations including surface installations on mines.
SANS 204	Energy efficiency in buildings
SANS 10108	The classification of hazardous locations and the selection of apparatus for use in such locations.
SANS 1012	Electric light dimmers
SANS 10142-1	The wiring of premises. Part 1: Low-voltage installations
SANS 1019	Standard voltages, currents and insulation levels for electricity supply
SANS 10198-1-14	The selection, handling and installation of electric power cables of rating not exceeding 33 kV. Parts 1 to 13
SANS 10199	The design and installation of earth electrodes
SANS 1029	Miniature substations
SANS 10292 (SABS 0292)	Earthing of low-voltage (LV) distribution systems.
SANS 10313	The protection of structures against lightning
SANS 1063	Earth rods, couplers and connections
SANS 1065-1 & 2	Metal conduits and fittings (screwed-end
SANS 1085	Wall outlet boxes for the enclosure of electrical accessories
SANS 1195	Busbars.
SANS 10114-1	Interior lighting Part 1: Artificial lighting of interiors
SANS 10114-2	Interior lighting Part 2: Emergency lighting

NUMBER	TITLE
SANS 1213	Mechanical cable glands
SANS 1239	Plugs, socket-outlets and couplers for industrial purposes
SANS 1339	Electric cables – Cross-linked polyethylene (XLPE) insulated cables for voltages 3,8/6,6 kV to 19/33 kV
SANS 1411-1	Materials of insulated electric cables and flexible cords – Part 1: Conductors
SANS 1418-1	Aerial bundled conductor systems – Part 1: Cores.
SANS 1433-1	Electrical terminals and connectors – Part 1: Terminal blocks having screw and screw less terminals.
SANS 1433-2	Electrical terminals and connectors – Part 2: Flat push-on connectors.
SANS 1473-1	Low-voltage switchgear and control gear assemblies – Part 1: Type-tested, partially type-tested and specially tested assemblies with a rated short-circuit withstand strength above 10 kea
SANS 1507-1 Parts 1-6	Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V)
SANS 156	Moulded-case circuit-breakers
SANS 1574-3	Electric flexible cores, cords and cables with solid extruded dielectric insulation – Part 3: PVC-insulated cores and cables.
SANS 1574-5	Electric flexible cores, cords and cables with solid extruded dielectric insulation – Part 5: Rubber-insulated cores and cables.
SANS 1632-1	Batteries Part 1: General information-Definitions, abbreviations and symbols
SANS 164-0 parts 1 - 6	Plug and socket-outlet systems for household and similar purposes for use in South Africa
SANS 1665	Metal-clad switchgear for rated a.c. voltages above 1 kV and up to and including 36 kV – General requirements and methods of test
SANS 1765	Low-voltage switchgear and control gear assemblies (distribution boards) with a rated short-circuit withstand strength up to and including 10 kA
SANS 1777	Photoelectric control units for lighting (PECUs)
SANS 1799	Watt-hour meters – AC electronic meters for active energy
SANS 1874	Metal-enclosed ring main units for rated a.c. voltages above 1 kV and up to and including 24 kV.
SANS 1973-1	Part 1 Type tested Assemblies with Stated deviations and a rated short circuit withstand strength over 10kA
SANS 1973-3	Low-voltage switchgear and control gear ASSEMBLIES – Part 3: Safety of ASSEMBLIES with a rated prospective short-circuit current of up to and including 10 kA
SANS 1973-8	Low-voltage switchgear and control gear ASSEMBLIES – Part 8: Safety of minimally tested ASSEMBLIES (MTA) with a rated short-circuit current above 10 kA and a rated busbar current of up to and including 1 600 A a.c. and d.c
SANS 337	Stove couplers
SANS 529	Heat-resisting wiring cables
SANS 556-1	Low-voltage switchgear – Part 1: Circuit-breakers
SANS 60044-1 to 5	Instrument transformers – Part 1 to 5
SANS 60079 (all parts)	Electrical apparatus for explosive gas atmospheres
SANS 60137	Insulated bushings for alternating voltages above 1 000 V
SANS 60265-1	High-voltage switches – Part 1: Switches for rated voltages above 1 kV and less than 52 kV
SANS 60269-1	Low-voltage fuses
SANS 60282-1	High-voltage fuses – Part 1: Current-limiting fuses

NUMBER	TITLE
SANS 60282-2	High-voltage fuses – Part 2: Expulsion fuses
SANS 60309-1	Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements
SANS 60439-1 to 5	Low-voltage switchgear and control gear Assemblies Parts1 to 5
SANS 60502-4	Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) – Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV).
SANS 60529	Degrees of protection provided by enclosures (IP Code).
SANS 60669-1	Switches for household and similar fixed electrical installations – Part 1: General requirements.
SANS 60669-2-1/	Switches for household and similar fixed electrical installations – Part 2-1: Particular requirements – Electronic switches.
SANS 60896-21	Stationary Lead Acid Batteries Part 21: Valve regulated types- Methods of Test
SANS 60896-22	Stationary Lead Acid Batteries Part 21: Valve regulated types-Requirements
SANS 60947-2	Low-voltage switchgear and control gear – Part 2: Circuit-breakers
SANS 60947-3	Low-voltage switchgear and control gear – Part 3: Switches, disconnectors, switch-disconnectors and fuse combination units.
SANS 60947-4-1	Low-voltage switchgear and control gear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters
SANS 60947-4-2	Low-voltage switchgear and control gear – Part 4-2: Contactors and motor-starters – AC semiconductor motor controllers and starters.
SANS 60947-4-3	Low-voltage switchgear and control gear – Part 4-3: Contactors and motor-starters – AC semiconductor controllers and contactors for non-motor loads
SANS 60947-5-5	Low-voltage switchgear and control gear – Part 5-5: Control circuit devices and switching elements Electrical emergency stop device with mechanical latching function
SANS 60947-6-1	Low-voltage switchgear and control gear – Part 6-1: Multiple function equipment –Transfer switching equipment.
SANS 61000-3-4	Electromagnetic compatibility - Limitation of emission of harmonic currents in low-voltage power supply systems for equipment with rated current greater than 16 A
SANS 61000-4-7	General guide on harmonics and inter-harmonics measurements and instrumentation, for power supply systems and equipment connected thereto
SANS 61008-1	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules.
SANS 61084-1	Cable trunking and ducting systems for electrical installations – Part 1: General requirements.
SANS 61238-1	Compression and mechanical connectors for power cables for rated voltages up to 30 kV (Um = 36 kV) – Part 1: Test methods and requirements
SANS 61312-3	Protection against lightning electromagnetic impulse – Part 3: Requirements of surge protective devices (SPDs).
SANS 61347-2-2	Lamp control gear – Part 2-2: Particular requirements for d.c. or a.c. supplied electronic step-down convertors for filament lamps
SANS 61386-1	Conduit systems for cable management – Part 1: General requirements.
SANS 61386-21	Conduit systems for cable management – Part 21: Particular requirements – Rigid conduit systems
SANS 61386-22	Conduit systems for cable management – Part 22: Particular requirements – Pliable conduit systems.
SANS 61386-23	Conduit systems for cable management – Part 23: Particular requirements – Flexible conduit systems
SANS 61558-1	Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests.
SANS 61641	Arc Testing

NUMBER	TITLE
SANS 61643-1	Low-voltage surge protective devices – Part 1: Surge protective devices connected to low-voltage power distribution systems – Requirements and tests.
SANS 61643-12	Low-voltage surge protective devices – Part 12: Surge protective devices connected to low-voltage power distribution systems – Selection and application principles
SANS 62053-11	Electricity metering equipment (a.c.) – Particular requirements – Part 11: Electromechanical meters for active energy (classes 0,5, 1 and 2).
SANS 62053-21	Electricity metering equipment (a.c.) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2).
SANS 62271 All Parts	High-voltage switchgear and control gear
SANS 62305-1	Protection of structures against lightning Part 1: General principles
SANS 62305-1	Protection against lightning – Part 1: General principles.
SANS 62305-2	Protection against lightning – Part 2: Risk management.
SANS 62305-3	Protection against lightning – Part 3: Physical damage to structures and life hazard
SANS 62305-4	Protection against lightning – Part 4: Electrical and electronic systems within structures
SANS 767-1	Earth leakage protection units – Part 1: Fixed earth leakage protection circuit-breakers.
SANS 780	Distribution transformers
SANS 950	Un-plasticized polyvinyl chloride rigid conduit and fittings for use in electrical installations
SANS 60044-1	Instrument transformers Part 1: Current transformers
SANS 60044-2	Instrument transformers Part 2: Inductive voltage transformers
SANS 60265-1	High-voltage switches Part 1: Switches for rated voltages above 1 kV and less than 52 kV
SANS 62271-200	A.C. metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV
SANS 60439-1	Low-voltage switchgear and control gear assemblies Part 1: Type tested and partially type-tested assemblies
SANS 60529	Degrees of protection provided by enclosures (IP code)
SANS 60947-1	Low-voltage switchgear and control gear Part 1: General rules
SANS 60947-2	Low-voltage switchgear and control gear Part 2: Circuit-breakers
SANS 60947-4	Low-voltage switchgear and control gear Part 4: Contactors and motor-starters
SANS 60947-5	Low-voltage switchgear and control gear Part 5: Control circuit devices and switching elements
SANS 60947-6	Low-voltage switchgear and control gear Part 6: Multiple function equipment
SANS 61439-1	LV Control-Gear and assemblies
SANS 60076 1-21	Power Transformers
SANS 10400	Code of Practice for the Application of the National Building Regulations (as amended)
	DPW requirements
	Electricity Regulation Act, No 4 of 2006 (as amended)
	The National Building Regulations and Building Standards Act 1996 (Act 29 of 1996) (as amended)
	Local Municipal By-Laws and any special requirements of the local supply authority
	Energy Code of Conduct for all Government Buildings
	National and Local Authority Fire Regulations and SANS 10400-T: 2011 (Ed 3)

NUMBER	TITLE
	ICASA Regulations
	Construction Regulations 2003
	The Local Government Act 1998 (Act 10 of 1998 (Gauteng), municipal by-laws and any special requirements of the local supply authority
	The Fire Brigade Services Act 2000 (Act 14 of 2000)
	The Post Office Act 1998 (Act 124 of 1998)
	The Electricity Act 1996 (Act 88 of 1996)
	The Regulations of the local Gas Board where applicable
	The National Water Act 1998 (Act no. 36 of 1998)
	The Water Services Act 1997 (Act no. 108 of 1997)
	The General Authorizations (Water act)
	The Environmental Conservation Act 1998 (Act no. 73 of 1989)
	The National Environmental Management Act 1998 (Act no. 107 of 1998)

e. Client Standards

In line with accepted practice, the Client has, from time to time, standardised on the supply of various items of equipment. The Tenderer shall undertake, and by the submission of his tender confirms that he has undertaken, to inform himself of the status of such standardisation requirements ruling at the time of tender, and any deviations from such standards shall be corrected by the successful Tenderer at his expense.

f. Maintenance of installations

With effect from the date of the issue of the Completion (First Delivery Certificate) the successful Tenderer shall, at his own expense, undertake the regular servicing of the installation during the maintenance period and shall make all adjustments necessary for the correct operation thereof.

The maintenance period shall be 12 months.

If during the said period the installations are not in working order, due to the fault of the successful Tenderer, or if the installations develop defects, the successful Tenderer shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however become so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory the successful Tenderer shall, if called upon by the Client, at his own expense, replace the affected part or the whole of the installations or such parts thereof as the Client may deem necessary with apparatus specified by the Client.

g. Balancing Of Loads

The successful Tenderer is required to balance the load as equally as possible over the multiphase supply where applicable.

1. LOW VOLTAGE PVC INSULATED CABLES (600-1000V)

Low voltage power cables shall be two, three or four core stranded plain annealed copper conductor, polyvinyl chloride (PVC) insulated, PVC bedded, galvanised steel wire armoured (SWA), PVC sheathed, PVC/PVC/SWA-ECC/PVC type cable 600/1000V to SANS 1574 as amended.

All low voltage power cables shall be manufactured in strict accordance to SANS 1507 and shall bear the SABS mark on the outer sheath.

The insulation material shall comprise of PVC in accordance to SANS 1411: Part II as amended.

The bedding shall consist of a continuous impermeable of PVC extruded sheath to fit the core or cores closely and to fill the interstices between the cores of multi-core cables.

Where armouring is specified, the armouring shall consist of one layer of round galvanized steel wire in accordance with SANS 1411: Part IV. Aluminium strip or tape armouring is not acceptable.

Unless otherwise specified specifically, all multi-core cables shall include earth continuity conductor (ECC) in the armouring. Where required additional bare earth copper conductor shall be installed as specified.

All cable connections from 16mm² conductor sizes and larger shall be of the hexagonal crimp method using correct size and type of lugs, ferrule and matching crimp head dices. Smaller conductor sizes shall be done with indent crimp method with tools having the ratchet facility to ensure a full depth crimp.

All routine tests specified by SANS 1507 as amended shall be carried out on production runs of the cable. Two test certificates will be provided for each cable drum delivered to site.

Wooden cables drums shall be clearly marked on both sides in accordance with SANS 1507 as amended. Both ends of the cable on the wooden drum must be sealed to prevent penetration of moisture. Both ends of the cable shall furthermore be fixed to the flange of the drum to avoid loose coiling and mechanical damage. Cable drums shall be placed on firm, well-drained surfaces.

Cable ducting and trenches shall be in accordance with SANS 2001 PD3.

2. LOW VOLTAGE CABLE INSTALLATION

All low voltage cables shall be in accordance with the standard and detail specifications.

Cables shall be loaded, transported and off-loaded on wooden cable drums manufactured and supplied for the purpose by the cable manufacturer.

The transportation, loading, off-loading and installation of the cables shall be in strict accordance with the requirements of the cable manufacturer, this specification and relevant standards which shall be continuously supervised and controlled by a competent person who is well experienced in the handling and installation of cables.

Cables that are not terminated shall at all times be capped and sealed to protect the ends from the ingress of moisture and dirt.

Cables shall be installed in the routes specified. Cable lengths are nominal and shall not be used for ordering purposes. The Contractor shall be remunerated on actual lengths of cable installed. All wastage shall be for the account of the successful Tenderer.

All cables shall be rolled from the wooden cable drum such that the cable will not be subjected to twisting or tensions values exceeding the values specified by the manufacturer.

Cables laid in the same trench shall be laid parallel to each other and shall not cross over one another.

All cables shall be run in single un-spliced lengths and shall be drawn up and terminated in the distribution kiosk, distribution boards, plant or equipment as required. When complete, all cabling and wiring shall present a neat and tidy appearance.

No joints shall be allowed in cables unless specifically called for in the Bill of Quantities or unless the cable lengths exceed the maximum standard drum lengths supplied by the manufacturer or without the prior approval of the Engineer.

The minimum radius of bends in all cables shall be as per the manufacturer recommendation to ensure that the minimum bending radii of the cables are maintained at all times during and after installation. Failure to adhere to this requirement may result in the rejection of the particular cable.

Special care shall be taken during installation to avoid any damage to the sheaths of the cable. Rollers and pulling socks or other suitable means approved by the Engineer shall be used for installing the cables in trenches. The rollers shall be free of sharp edges and shall be spaced to prevent the cable from touching the ground during the pulling process. Corner rollers shall be used at each corner and where required bond pulling shall be used.

Where communication, instrument or signal type service cables run with power cables in the same trench, the minimum separation shall be 500mm. Where "signal" and power services cross, they shall be separated vertically by 500mm.

LV cables no less than 600mm below final ground level measured to the top of the cable.

The cables shall be laid in such a manner that the beginning of a drum shall be laid from the end of the previous drum to ensure that the lay of the cores remain the same. Low voltage cables shall overlap by at least 500mm.

All cables shall be fitted with the appropriate size lugs at the termination. Lugs and ferrules equal or greater the 16mm² shall be crimped with a hydraulic crimper only using a hexagon die.

All glands, lugs, fixers, nuts, bolts and other consumables are, where not specifically detailed in the Bill of Quantities, are to be included within the price for cable terminations.

Where cables cross under roadways, walkways, parking areas, paved areas and other services, and where cables enter buildings, the cables shall be installed in 110mm diameter Class 9 u-PVC pipes or as indicated on the drawings.

Every cable shall be marked on both ends by means of an approved type cable tag label on which the size of cable and its source or destination and cable number is punched. The label shall be installed around the outer PVC sheath immediately below the cable termination and gland.

3. CABLES IN TRENCHES

All cable trenches shall be routed as indicated on the drawings attached to this specification. Deviations shall only be permitted by prior consent of the Electrical Engineer or the issuing of revised drawings.

Trenches shall be straight and be cut as square as possible and the bottom made flat and free from stones or other hard projections. Where this is not possible, a 50mm layer of stone free sand shall be laid at the bottom of the trench to accommodate the cables. It must be presumed that, where trenching occurs within soft/hard rock, the trenching rate shall include for the stone free layer of soil. After installation, the cables shall be covered with a 100mm layer of fine, stone free soil prior to backfilling. The backfill shall be adequately compacted in layers of 250mm to the approval of the Electrical Engineer.

The minimum width of trenches shall be 300mm for one cable and 500mm for up to three unless otherwise specified.

Cables shall be laid at a minimum depth of 600mm (to top of cable) for cables rated 600/1000V, and 1 000mm (to top of cable) for cables rated greater than 1000V, below the adjoining final ground level, except where intersections take

place with other services, adequate clearance between the services shall be allowed.

A cable marking tape shall be run 300mm above each cable. Where multiple services are installed within the same trench, two marker tapes shall be installed marking the width extremities of the trench. For cables rated greater than 1 000V, protective cable tiles shall be laid at 600mm above each main cable for the entire length of the cable trench.

The Tenderer shall excavate by hand due to limited access or the proximity of other services.

Special care shall be taken at intersections with other services. Any damage to other services shall be made good and paid for by the Contractor.

No excavated material shall be left closer than 300mm from the side of the excavation. The excavated material shall take up as small an area as possible with the safety of the workmen and Works taken into consideration.

The Tenderer shall maintain the excavation in a good condition, free of water, mud, loose ground, rocks, stones, gravel and other strange material until the cables are installed and the excavation is backfilled and completed.

The cable shall, after the completion of the trench, be laid with the minimum of delay so that the trench can be backfilled. Timeous arrangements shall be made that all cables be inspected by the Electrical Engineer prior to backfilling and closing trenches. The Tenderer shall be responsible for informing the Electrical Engineer timeously, and non-inspected closed trenches may be required to be opened up for test inspections or may be rejected.

All open cable trenches shall be effectively barricaded so as to prevent people from falling into the trenches. Cable trenches within demarcated and fenced construction areas shall be barricaded with danger tape and maintained to be clearly visible to all construction activities.

4. CABLES IN SLEEVES

Pulling socks or other suitable means approved by the Engineer shall be used for the installation of cables in sleeves. Care shall be taken to ensure that the maximum allowed mechanical forces on the cables are not exceeded and that the sheaths are not damaged during installation. Furthermore, the Contractor shall ensure that the cables are not kinked or excessively bent while maintaining the minimum bending radius as specified by the manufacturer.

The Contractor shall use necessary precautions to ensure that all cables are not damaged at the mouth of cable sleeves.

The Contractor shall inspect the sleeves before installation of the cables to ensure and confirm that there are no sharp edges present that could cause damage to the sheaths.

Cables found with scratch marks or other forms of damage will be rejected and shall be replaced at the Contractor's cost.

Should long runs of cables in sleeves be encountered, it may be required to grease the cable with petroleum jelly or other non-aggressive compound to facilitate the installation. This will however be discussed with the Engineer prior to installation.

5. CABLES ON CABLE RACKING

Cables to be installed on cable racking shall be secured to the cable racking at intervals not exceeding 1m.

Cables with diameters larger than 50mm and cables in trefoil arrangement shall be secured by means of stainless steel bandit straps (over a PVC strap for the protection of sheath). Smaller cables shall be secured by means of PVC cable ties.

All cables shall be individually strapped, except for cables installed in trefoil format.

6. CABLE NUMBERING AND CORE IDENTIFICATION

Each cable shall be numbered by means of an approved type cable tag attached to both ends below each termination and gland. Each tag shall indicate the designation connected at the other end, cable size, number of cores, length, earth wire size and be easily readable after installation.

7. DISTRIBUTION BOARDS

The successful Tenderer shall be responsible for the design and installation of the distribution boards so as to ensure that they fit comfortably in the positions specified on the drawings, are easily maintained and the doors of the distribution boards can be fully opened.

The layouts and construction of all distribution boards shall be to the approval of the Engineer prior to ordering and manufacturing.

The distribution boards shall be of the flush / floor standing / surface mounting type/s. The distribution board tray shall be constructed of 1.6mm minimum thickness hot dip galvanised steel or folded 3CR12 sheet metal. Pre-punched knockouts for conduit shall be incorporated in the upper and lower sides of the distribution board tray prior to galvanising. The size of tray shall be determined by the number of circuits actually installed allowing for 30% additional circuit space and spare conduits installed from the distribution board to the ceiling void where the distribution board (DB) is built into a wall.

The architrave frame shall be constructed with square edges from minimum 1.6 mm thick 3CR12 steel and be powder coated. The architrave frame shall form a 25 mm border around the bonding tray and shall be fixed to the bonding tray in such a manner as to allow for adjustment for the inequalities in the wall finish. A minimum of 75 mm shall be allowed between the inside of the architrave frame and the equipment.

The distribution board cover shall be constructed of minimum 1.6mm thick folded 3CR12 steel and be powder coated. The distribution board cover shall have machine cut openings for the specified electrical equipment and as indicated on the single line diagrams. The distribution board cover shall furthermore be fitted with suitable handles to facilitate safe the removal of the cover.

Distribution boards shall be equipped with single/double hinged doors. The doors shall be constructed of 2 mm minimum thick 3CR12 steel and be powder coated. Where required, the doors shall be reinforced to ensure rigidity. The door shall be mounted flush in the architrave frame and will comply with the requirements detailed on the drawings.

The distribution boards shall be equipped with suitably sized tinned solid copper neutral and earth bars as required for earth leakage protected circuits and for the balancing of the circuits. Only one neutral conductor shall terminate in each clamp. 30% extra terminals shall be provided above those circuits actually installed.

Wiring shall be done by means of PVC insulated copper conductors with sizes to suit the relevant switchgear. The ends of the conductors shall be provided with suitably sized lugs, firmly crimped for connection to busbars.

The main/incoming isolator/circuit breaker shall be mounted at the left hand side of the distribution board. The isolators and circuit breakers shall comprise the list as shown on the single line diagram. Should the distribution board comprise of rows of equipment, then sufficient vertical space shall be allowed for between equipment for the bending and termination of conductors and cables. The earth leakage circuit breakers/isolators shall be 30mA sensitivity with a tolerance of +0 to -50%.

All metal doors shall be earthed bonded to the distribution board tray by means of an insulated copper strap, tooth washers, bolts and nuts.

Every circuit on each distribution board shall be clearly and legibly labelled. The legend shall be typed and circuit breaker numbering shall be of the engraved type.

All unequipped spaces in the distribution boards shall be fitted with dummy miniature circuit breakers (MCBs) or approved cover plates.

uPVC sleeves installed shall cater for the cable size and the minimum bending radius on the sleeve with minimum 6 times the diameter of the sleeve.

Distribution boards shall be painted and labelled in accordance with the details as specified below:

Table 3: DB Descriptions

	Normal Supply	**Essential Supply**	**UPS Supply**
Colour of Indoor Distribution Board	White or Beige	White or Beige but preferably Red	White or Beige but preferably Blue
Colour of Outdoor Distribution Board	Electric Orange colour B26 of SANS 10140 (Part II)	Electric Orange colour B26 of SANS 10140 (Part II)	Electric Orange colour B26 of SANS 10140 (Part II)
Colour of Face Plate	White or Beige (Indoor) Electric Orange (Outdoor)	Signal Red colour B26 of SANS 1091	Blue colour F06 of SANS 1091
Label Type	Black letters on White Ivorene label	White engraved letters on red Ivorene label	White engraved letters on blue Ivorene label
Label Fixing	Ivorene label to be glued with super glue or pop riveted to face plate or frame		
Distribution Board Label Details	Distribution Board name e.g. DB A	Distribution Board name e.g. DB AE	Distribution Board name e.g. DB AU
Face Plate Label Details	Distribution Board Name; Indication of Feeder source; Size of Feeder cable; Fault level; Rating of Distribution Board; Phase rotation		
Letter Font	Arial		
Letter Size	Distribution Board label 6mm Face Plate label 3mm		
Labelling of Cables	All incoming and outgoing cables must be labelled with Ivorene labels indicating the designation and size of the cable		

8. CONDUIT AND ACCESSORIES (PVC)

The conduit and wiring system shall include all conduit, draw boxes (where required), joints, elbows and other accessories required for the completion of the Contract Works. Consumables, including saddles, fixers, screws, conduit bushes, etc., are deemed to be included within the rates quoted. A minimum number of joints shall be permitted in any length of conduit run between draw boxes, switch socket outlets, luminaries, distribution boards, etc.

All the conduiting shall be done on the roof trusses (attached by means of saddles onto the bottom of the trusses) or on top of the ring beams or chased into walls or cast in concrete where applicable. The conduit work shall cater for face brick external wall finishes and plastered/face brick internal finishes to all buildings. No surface conduit shall be allowed and the successful Tenderer shall build conduits into the walls. Where services exit in face brick walls, the successful Tenderer is to ensure that the conduit box or switch box is symmetrical with the nearest brick course.

The successful Tenderer shall be responsible for the conduit routing. Draw-boxes are to be provided in accordance with the Wiring Code and wherever necessary to facilitate easy wiring.

The successful Tenderer shall have a representative in attendance at all times when the casting of concrete slabs takes place, to ensure that no movement or damage to conduit occurs.

Unless other methods of installation are specified for certain circuits, the installation shall be in conduit throughout. No open wiring in roof spaces or elsewhere will be permitted.

The conduit and conduit accessories shall comply fully with the applicable SABS specifications and the conduit shall bear the mark of approval of the South African Bureau of Standards.

The bonding of PVC tubing to connectors, elbows or termination boxes shall be carried out using a good quality adhesive, rendering the pipe work completely watertight.

The loop in system shall be used throughout the installation. This means that all wiring shall be possible from below the ceiling and that no inspection or draw boxes shall be allowed in the ceiling space.

For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm.

For telephone and local area network (LAN) circuits, the conduit used shall have an external diameter of 25 or 32mm. In all other instances the sizes of conduit shall be in accordance with the Wiring Code for the specified number and size of conductors. For a single outlet point, a 25mm conduit must be installed and a 32mm to power skirting for every 5 or less outlet points.

Only one manufactured type of conduit and conduit accessories will be permitted throughout the installation.

Under no circumstances will conduit having a wall thickness of less than 1.6mm be allowed in screeding laid on top of concrete slabs.

Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems. Damage to conduit resulting from the use of incorrect bending apparatus or methods applied must, on indication by the Client's Representative, be completely removed and rectified, and any wiring already drawn into such damaged conduits must be completely renewed at the successful Tenderer's expense.

Flexible connections between conduit and appliance or other equipment shall be by means of flexible conduit.

Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the local electricity supply authority prior to the submission of their tender. Under no circumstances will consideration be given by the Engineer to any claim submitted by the successful Tenderer that may result from a lack of knowledge in regard to the requirements of the supply authority.

The Contractor shall make himself familiar with the positions of all fittings, such as blackboards, pinning boards, cupboards, shelving, work-tops, etc, before commencing the conduit installation. The position of switches and socket outlets as indicated on the drawings are approximate only. The Contractor must verify that the final position of these will not be covered by the installation of the fittings referred to above, or come midway between the junction of any dadoes and upper wall finishes.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish.

9. CONDUIT IN ROOF SPACES

Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1.5m by means of saddles screwed to the underside of the roof timbers.

Nails or crampets will not be allowed.

Where non-metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450mm. The successful Tenderer shall supply and install all additional supporting timbers in the roof space as required.

Under flat roofs, in false ceilings or where there is less than 1m of clearance, or should the ceilings be insulated with glass wool or other insulating material, the conduit shall be installed in such a manner as to allow for all wiring to be executed from below the ceilings.

10. SURFACE MOUNTED CONDUIT

Wherever possible, the conduit installation is to be concealed in the building work, however, where unavoidable or otherwise specified, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

The use of inspection bends is to be avoided and instead the conduit shall be set uniformly and inspection couplings used where necessary.

Conduit will be secured on heavy duty approved spaced saddles rigidly secured to the mounting surface.

Alternatively, fittings, tees, boxes, couplings etc., are to be cut into the surface to allow the conduit to fit flush against the surface. Conduit is to be bedded into any wall irregularities to avoid gaps between the surface and the conduit.

Crossing of conduits is to be avoided; however, should it be necessary, purpose-made metal boxes are to be provided at the junction. The finish of the boxes and positioning shall be in keeping with the general layout.

Where several conduits are installed side by side, they shall be evenly spaced and grouped under one purpose-made saddle.

Distribution boards, draw-boxes, industrial switches and socket outlets etc., shall be neatly recessed into the surface to avoid double sets.

In situations where there are no ceilings the conduits are to run along the wall plates and the beams.

Only approved plugging materials such as aluminium inserts, fibre plugs, plastic plugs, etc, and round-head screws shall be used for fixing saddles, switches, socket outlets, etc., to walls. Wood plugs and the plugging in joints in brick walls are not acceptable.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish.

11. WIRING

In general, all wiring used in installations shall be of at least 600/1000V grade in accordance with SABS 1507 and PVC insulated, subject to volt drop calculation results.

Light, ceiling fan and extractor fan circuits shall be wired with 2.5mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Switched socket outlets and power points shall be wired with 4mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Geyser, air conditioner and heater circuits shall be wired with 4mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Stove and oven cooker circuits shall be wired with 6mm² 7 strand copper conductor PVC insulated wire, subject to volt drop calculation results.

Wiring for circuits not specified shall be according to SANS 10142-1.

Associated with every circuit, a stranded copper earth conductor shall be run and connected to the terminal of the appliance or outlet and on the installed earth bar within the distribution board. Wire sizes shall be as follows:

6mm² conductor	:	4mm² earth wire
4mm² conductor	:	2.5mm² earth wire
2.5mm² conductor	:	2.5mm² earth wire
1.5mm² conductor	:	2.5mm² earth wire

Where circuits are run in metal conduit, bare earth conductor shall be used and PVC insulated earth conductor shall be used for circuits run in PVC conduit.

12. POWER SKIRTING

The power skirting shall provide for all the services detailed on the layout diagrams, and shall be in accordance with the type specified in the legend, or equal approved. Wiring shall conform to the standards detailed within this specification. The power skirting shall be of the type detailed on the layout diagrams complete with all bends and end caps.

The per meter rate quoted for the supply of the power skirting shall include for all necessary covers, fitting mechanisms, fixers and consumables, but shall not include for switched socket, telephone or computer LAN outlets plus cover plates and other hardware fitted into the power skirting.

Conduits linking between sections of power skirting and between the power skirting and the relevant distribution boards shall be provided as per the requirements for plug, telephone and computer LAN circuits.

13. LIGHTING

13.1 LIGHTING CONDUIT WORK

Lighting circuits are to be conduited using 20mm conduit, and all lighting circuits are to be routed via the ceiling, either cast into the ceiling slab or saddled to roof trusses and brandering in the ceiling void. A separate circuit shall be run from the distribution board for each of the light circuits as indicated on the layout diagrams.

Light points are to consist of 60mm round boxes 32mm deep with side/back entry. Where a light point is to be cast into a ceiling slab a deep conduit box with extension ring shall be used to provide a 61mm deep conduit box.

For external wall mounted lighting the conduit shall be attached to the fitting in such a manner as to provide a weatherproof and vermin proof seal. Where a luminaire is to be installed on a face brick wall, conduit shall be chased into the inner skin or routed in the wall cavity, and shall only protrude at the position of the mounting, terminating in a conduit box over which the luminaire shall be mounted.

The light switch point shall consist of a galvanised pressed steel conduit box of dimensions 100mm x 50mm x 50mm deep recessed into the brickwork to allow for a flush mounting.

The successful Tenderer is to co-operate closely with the building contractor to ensure that luminaires are symmetrically positioned with regards to the ceiling pattern. The exact positioning of lights and switches is to be confirmed with the Client's Representative.

13.2 LIGHTING GENERAL

Lighting shall comply with the SABS standards where applicable. The luminaires specified are detailed in the Bill of Quantities and drawings and luminaire schedule. Where alternative luminaires and lamps are offered, the details shall be submitted with the tender. All alternatives shall be subject to the approval of the Client's Representative. Earth conductors shall be connected to the earthing terminal of all luminaires and in accordance with SANS 10142-1.

All luminaires shall be supplied complete with a first working fitting of the appropriate lamp in each lamp holder. Each lighting circuit on the Distribution Board shall consist of a 10A single pole MCB of 6kA rupturing capacity, unless specified otherwise on the single line diagram.

Unless otherwise specified in the Bill of Quantities or the drawings, the light switches shall be of Clipsal Series 2000, Crabtree Diamond or other approved. The correct PVC cover plate shall be provided with the light switch and included in the rate for the light switch.

The colour coding of light switches shall be in accordance with the details as specified below:

Table 4: Colour Coding of Switches

	Normal Supply	**Essential/Emergency Supply**	**UPS Supply**
Colour of Cover Plate	White		
Colour of Switch Toggle	White	Red	Blue
Label Type	Black letters on White Ivorene label or engraved directly on the cover plate with Black infill	Red letters on White Ivorene label or engraved directly on the cover plate with Red infill	Blue letters on White Ivorene label or engraved directly on the cover plate with Blue infill
Label Fixing	Ivorene label to be glued with super glue or pop riveted to cover plate		
Cover Plate Label Details	Distribution Board name and circuit number feeding the switch e.g. DBA L1	Distribution Board name and circuit number feeding the switch e.g. DBAE LE1	Distribution Board name and circuit number feeding the switch e.g. DBAU LU1
Letter Font	Arial		
Letter Size	3mm		

13.2 LIGHT EMITTING DIODE (LED) LUMINAIRES

LED linear light fittings are to be of the PioLed manufacture or other approved. Performance requirements of LED luminaires shall be according to SANS 475. Luminaires shall also bear the SANS mark of approval and the SANS 1464 safety mark.

NB: NO ALTERNATIVE LIGHT FITTINGS WILL BE ACCEPTED AFTER TENDER AWARD.

14. SWITCHED SOCKET OUTLETS (PLUGS)

Plug circuits are to be conduited using 25mm conduit, and all plug circuits are to be cast into the floor slab, unless circumstances specific to the installation require otherwise. A separate circuit shall be run from the distribution board for each of the plug circuits as indicated on the layout diagrams.

The plug point shall consist of a galvanised pressed steel flush/surface mounted conduit switch box of dimensions 100mm x 100mm x 50mm deep recessed into the brickwork to allow for a flush mounting.

Unless otherwise specified in the Bill of Quantities or the drawings, the socket outlets shall be of the round pin 16A rating euro socket outlet type where indicated, similar in design and construction to the Clipsal Series 2000, Crabtree Diamond or other approved. The correct cover plate shall be provided with the switched socket outlet and included in the rate for the plug.

The colour coding of switched socket outlets shall be in accordance with the details as specified below:

Table 5: Colour Coding of Switched Socket Outlets

	Normal Supply	Essential/Emergency Supply	UPS Supply
Colour of Cover Plate	White		
Colour of Switch Toggle	White	Red	Blue
Label Type	Black letters on White Ivorene label or engraved directly on the cover plate with Black infill	Red letters on White Ivorene label or engraved directly on the cover plate with Red infill	Blue letters on White Ivorene label or engraved directly on the cover plate with Blue infill
Label Fixing	Ivorene label to be glued with super glue or pop riveted to cover plate		

	Normal Supply	Essential/Emergency Supply	UPS Supply
Cover Plate Label Details	Distribution Board name and circuit number feeding the socket outlet e.g. DB A/P1-1 Each socket outlet on a circuit shall be labelled	Distribution Board name and circuit number feeding the switch e.g. DB AE/PE1-1 Each socket outlet on a circuit shall be labelled	Distribution Board name and circuit number feeding the switch e.g. DB AU/PU1-1 Each socket outlet on a circuit shall be labelled
Letter Font	Arial		
Letter Size	3mm		
Earth Pin	Round		
Colour of Female Insert	White		

All switched socket outlets fed from circuits equipped with Earth Fault Monitoring equipment shall be equipped with double pole switches.

Dedicated switched socket outlets for computer equipment only, shall comply generally with those fed from the normal supply, but shall have red cover plates, switch toggles and female inserts, and shall only accept plugs with D-shaped earth pins.

All switched socket outlets shall comply with SABS 164 and shall be rated at 16A.

Not more than six 16A double switched socket outlets shall be connected to any one circuit without the approval of the Client's Representative.

Each power circuit on the distribution board shall consist of a 20A single pole MCB of the correct kA rupturing capacity as specified on the single line diagram.

Spurs and additions to any switched socket outlet circuit will not be accepted.

15. AIR CONDITIONER CIRCUITS

Air conditioner circuits are to be conduited using 25mm conduit, and all air conditioner circuits are to be are to be routed via the ceiling, either cast into the ceiling slab or saddled to roof trusses and brandering in the ceiling void. The circuit shall terminate in a 60mm round conduit box installed flush on the external wall and in such a manner as to provide a weatherproof and vermin proof seal. The conduit box shall be located at a point within 1.5m of the position at which the air conditioner condenser unit is to be mounted. A separate circuit shall be run from the distribution board for each of the air conditioner circuits as indicated on the layout diagrams. Unless specified otherwise in the Bill of Quantities, the successful Tenderer shall not be responsible for the supply and installation of the air conditioner units, but shall be responsible for the electrical connection to the air conditioner units.

Each air conditioner circuit on the Distribution Board shall, depending on the size of the air conditioning unit, consist of either a 30A 2 pole or a 30A 3 pole MCB of 5kA rupturing capacity, unless specified otherwise on the single line diagram.

A 30A 2 pole or 30A 3 pole weatherproof Ingress Protection 65 (IP65) enclosed type corrosion proof PVC encased isolating switch shall be mounted over the position of the external conduit box. The isolator shall have a 5kA rating, unless specified otherwise on the single line diagram.

Unless otherwise specified in the Bill of Quantities or the drawings, the isolator outlets shall be similar in design and construction to the Clipsal Series 2000, Crabtree Diamond or other approved. The correct PVC cover plate shall be provided with the isolator outlet and included in the rate.

16. EXTRACTOR FAN CIRCUITS

For extractor fans to be mounted in walls or windows, a 16A front entry two pole cord grip isolator shall be installed not further than 1.5m away from each extractor fan. The isolator shall be flush mounted on the wall adjacent to the fan.

For extractor fans mounted in ceilings, the 5A, 3 pin socket outlet mounted in a 63mm diameter round conduit box shall be installed not further than 1.5m away from the extractor fan. The extractor fan shall be fitted with a 5A, 3 pin plug.

For ducted extraction systems mounted in ceilings, a 16A two pole isolator shall be installed in a 100 x 100 x 50 conduit box not further than 1.5m from the fan motor. The fan motor shall be connected to the isolator using a flexible conduit connector.

Where indicated on the layout diagram, each extractor fan shall be wired into the light circuit of the room in which it is to be installed.

Unless otherwise specified in the Bill of Quantities or the drawings, the isolator outlets shall be similar in design and construction to the Clipsal Series 2000, Crabtree Diamond or other approved. The correct PVC cover plate shall be provided with the isolator outlet and included in the rate.

17. EQUIPMENT ISOLATORS

The colour coding of isolators located adjacent to items of fixed equipment as prescribed in SANS 10142-1 or elsewhere in this specification or drawings, shall be in accordance with the details as specified below:

Table 6: Colour Coding of Isolators

	Normal Supply	Essential/Emergency Supply	UPS Supply
Colour of Cover Plate	White		
Colour of Isolator Toggle	White	Red	Blue

	Normal Supply	Essential/Emergency Supply	UPS Supply
Label Type	Black letters on White Ivorene label or engraved directly on the cover plate with Black infill	Red letters on White Ivorene label or engraved directly on the cover plate with Red infill	Blue letters on White Ivorene label or engraved directly on the cover plate with Blue infill
Label Fixing	Ivorene label to be glued with super glue or pop riveted to cover plate		
Cover Plate Label Details	Distribution Board name and circuit number feeding the isolator e.g. DBA I1	Distribution Board name and circuit number feeding the isolator e.g. DBAE IE1	Distribution Board name and circuit number feeding the isolator e.g. DBA U/IU1-1
Letter Font	Arial		
Letter Size	3mm		

Where Blue isolator toggles are not obtainable and written approval was obtained from the Engineer, an isolator switch incorporating a Red or Blue neon or LED indicator may be used. Alternatively, a White isolator toggle may be used but the isolator toggle must be tagged with a non-removable Red or Blue sticker.

Unless otherwise specified in the Bill of Quantities or the drawings, the isolator outlets shall be similar in design and construction to the Clipsal Series 2000, Crabtree Diamond or other approved. The correct PVC cover plate shall be provided with the isolator outlet and included in the rate.

18. FIRE DETECTION SYSTEM

The successful Tenderer shall be responsible for the design, supply, installation, commissioning and testing of the Fire Detection System. Designs to be approved by Engineer prior to installation.

All details, dimensions and instructions shown on any drawings, diagrams, and specifications quoted herein, shall be taken as forming part of this specification.

If there is any discrepancy between drawings and specifications, the specification shall take precedence.

A Contractor supplying goods for the first time shall obtain approval from the Engineer of advance samples before proceeding with the bulk of the contract. The Contractor must be a member of the Fire Detector Installer Association (FDIA) and Automatic Sprinkler Inspection Bureau (ASIB), where sprinkler installations are required.

A fully addressable closed circuit fire detection system shall be installed (max 126 units per loop).

Supplementary specs, regulations and requirements

The design and installation of the Fire Detection System shall be done in accordance and comply with the latest relevant requirements of the following specifications as amended:-

- SANS 322: Fire detection and alarm systems for hospitals
- SANS 10400: The application of the National Building Regulations
- SANS 10139: Fire detection and alarm systems - System design, installation and servicing
- SANS 50054-1: Components of automatic fire detection systems Part 1: Introduction
- SANS 50054-2: Fire detection and alarm systems Part 2: Control and indicating equipment
- SANS 50054-3: Fire detection and alarm systems Part 3: Fire alarm devices - Sounders
- SANS 50054-4: Fire detection and alarm systems Part 4: Power supply equipment
- SANS 50054-5: Fire detection and alarm systems Part 5: Heat detectors - Point detectors
- SANS 50054-7: Fire detection and alarm systems Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization
- SANS 50054-11: Fire detection and alarm systems Part 11: Manual call points
- SANS 1411-5: Materials of insulated electric cables and flexible cords Part 5: Halogen-free, flame-retardant materials
- SANS 60331-21: Tests for electric cables under fire conditions - Circuit integrity Part 21: Procedures and requirements - Cables of rated voltage up to and including 0,6/1,0 kV
- SANS 1411-2: Materials of insulated electric cables and flexible cords Part 2: Polyvinyl chloride (PVC).
- SANS 950: Unplasticized polyvinyl chloride rigid conduit and fittings for use in electrical installations
- SANS 1200LC: Standardized specification for civil engineering construction Section LC: Cable ducts
- The Council of Fire Insurance Companies of South Africa

The Following Regulations Shall Also Apply:

- European Standard EN 54: European Norm: Fire Detection Systems
- ACT 85 of 1993: Occupational Health & Safety Act.
- ACT 103 of 1977: National building regulations Act.

The system shall also comply with the relevant requirements of one or more of the following bodies provided there is no conflict with any other requirement of this specification or S.A. regulations.

- Vertrauen durch Sicherheit (VdS) (the German Underwriters Association)
- The Fire Officer's Committee of the United Kingdom.
- The Council of Fire Insurance Companies of South Africa

Inspection

The Engineer reserves the right to arrange for the inspection of all goods forming the subject of any contract or order, at any stage before final acceptance and by any means it may think fit, and when such inspection is to be carried out, the relevant contracts, orders and sub-orders shall be endorsed accordingly.

When inspection at the Contractor's works or warehouse is specified, the authorised person shall have free access to the premises of the Contractor at all times during working hours; shall have liberty to inspect work which is the subject of the contract or order, at any stage of manufacture. The Contractor shall make good any work found defective or in any way not conforming to the terms of the contract or order. The Contractor shall afford all reasonable facilities for such access and inspection.

The Contractor shall supply, without charge all tools, gauges, templates and other equipment which may be required for checking the accuracy of the work, provide the labour necessary for inspecting the work in accordance with requirements specified in the contract of order and shall render all reasonable assistance in carrying out this checking and inspection.

The Contractor shall, without charge, prepare and supply all test pieces, samples and specimens, provide all labour and apparatus for carrying out tests and analyses in accordance with the terms of the contract or order and render all reasonable assistance in making such tests and analyses.

Certificate of Compliance

The Contractor shall indicate, section by section, whether or not his equipment complies in every respect with this specification.

If alternative equipment is submitted, all deviations from this specification shall be clearly stated.

Right of reservation

The Engineer reserves the right to accept certain parts of the self-addressable fire detection system only and not necessarily the complete system as a whole.

Undertaking by Contractor

The Contractor shall undertake to provide, as part of the following in respect of the equipment he has offered:

• All technical and other information, in English concerning the equipment.

• Proposals regarding the schematic lay-out of his equipment as part of the complete system in which it will function.

• The technical and other information on the drawings and in the technical manuals shall include:

a) Electrical input and output requirements
b) Installation instructions
c) Operations instructions
d) Circuit diagrams and component layouts
e) Routine testing information and requirements
f) System and equipment description

Samples

A sample of the items covered by this specification shall be submitted, if called for. The sample will be regarded as being identical to the item which has been submitted.

Scope

The specification covers the requirements for the design, delivery to site, installation, testing, commissioning and handing over in a working condition of a fire detection and alarm system.

The Contractor shall submit with this offer a detailed list of additional requirements he considers necessary in order to ensure that the installed system shall:

• be fully operational
• comply with the specifications mentioned above
• any other improvement the supplier may offer that can be to the benefit of the user.

General description

The fire detection system shall comprise a Central Station, connected to field devices, including fire detection devices, alarm devices and control devices, located throughout the protected building.

The central station shall continuously monitor the ambient status of all sensing devices, and initiate action when a fire or smoke condition is present.

The alarm management shall be field programmable to enable the system to be easily tailored to suit the protected building, and to permit future changes.

The system shall be fully modular in design to meet the user's requirements.

The central station shall have, visible on the front panel, zone LED's for "fire" and "fault" common LED's and controls, and a Liquid Crystal Display (LCD) display. The unit shall have facilities for interfacing with a micro-computer and desk printer.

The central station shall consist of a wall or rack mounted cabinet with key-lockable doors, glazed with clear Perspex. All lamps and controls shall be behind the Perspex.

Detailed description

The successful Tenderer shall be responsible for providing a link or interface to the local Fire Stations, building management system (if any) and air-conditioning systems.

The fire and smoke detection system shall comprise of various detectors to cover each area. A multi-zone fire detection control panel of the type ZITON, ARITECH or AST shall be installed to DPW requirements. The panel shall be supplied with back up battery. The panel shall be fed from the Emergency Power distribution board by means of a 10A circuit breaker located in a glass fronted, lockable box positioned next to the distribution board.

The audible siren shall have strobe light and shall be of the type ROSHNEE.

The smoke and heat detectors shall be of the type APPOLO or ZITON.

The manual call point shall be of the type ZITON, ARITECH or AST.

PH120 type fire retardant cable to comply with SABS 150/SABS 168 or BS 6207 shall be used throughout the installation.

The cable shall be drawn/installed in a 20mm conduit or trunking.

The successful Tenderer shall provide a Compliance Certificate on completion of the Fire Detection System installation. Fire detection installations shall conform to DPW standards and requirements.

Facilities

The transmission paths between the control unit and other external devices shall be a 2 wire circuit.

It shall be possible to couple the following devices/detectors to the control unit (Central Station).

- Automatic fire detectors
- Manual fire detectors
- Alarm devices (zoned)
- Remote signalling devices
- Control devices for automatic fire protection equipment e.g. FM200, Inergen or Argonite.

The central station shall accept the following types of fire sensing devices.

- Ionization smoke detectors
- Optical smoke detectors
- Heat detectors, fixed temperature, 58° C.

- Heat detectors, rate-of-rise, 58° C.
- Linear (beam type) smoke detectors.
- Manual "Break-Glass" units.

These circuits shall be continually and automatically monitored for open circuit, short circuit, earth leakage and detector removal. A single short circuit is to cause a maximum of 20 detectors in the system to be disabled, with the remaining detectors functioning normally. This is to be achieved by the use of line isolator units.

Line Isolators

Line isolators are to be located at intervals on the detector line. In the event of a line short circuit, the isolators on each side of the short must open and isolate the faulty section of wiring.

The isolators must be under software control. In the maintenance mode it must be possible to open or close isolators manually from the panel for test purposes.

A fault in any of the transmission paths shall cause a "Fault Alarm" to be indicated automatically in the central station.

Any change in the ambient condition of any receiver line shall automatically be updated and stored in the central station.

Monitoring of elements in an alarm line

The alarm threshold of every detector shall also vary in accordance with its idle state. This change shall be stored and continually updated in the central station.

Each element of an alarm line shall be continually and automatically monitored, individually. Any change in the ambient value of the element shall be updated and stored in the central station. When the value of an element reaches a level at which it will no longer perform its function, a "Fault Alarm" must be automatically indicated in the central station.

Such a fault indication shall not prevent a fire alarm in the line being detected and indicated.

Monitoring of zones

Each detection line shall be divisible into a maximum of 4 separate zones and a maximum of 20 devices per zone.

Each zone shall be clearly defined and indicated.

Each zone must have the facility to be monitored for a fire alarm condition from either manual or automatic detectors.

Alarm detection lines

Alarm/Detection lines may have a capacity of detectors or elements as decided upon by the manufacturer, but shall not have more than 127 detectors. These detectors/elements shall be freely distributed over any one of the individual alarm zones.

An alarm zone may only extend over a single fire zone and quick and precise identification of the seat of the fire must be possible.

An alarm line shall not extend beyond one floor except in the case of stairwells or lift shafts.

Each line shall be capable of monitoring functions.

An LCD display shall be provided for indicating the exact position of triggered detectors/elements in any line.

A triggered detector/element shall not cause any other detectors on the line to cease monitoring.

Each line must be capable of switching on/off air-conditioning plants, fans, etc. in case of an alarm, and cause plant facilities to be switched on/off via separate high or low voltage relays, or via a switching matrix.

In the specific zone where a fire has been detected it shall be possible to control equipment plant, fire dampers, etc. pertinent to that particular zone only.

Any detector, when triggered, shall be capable of causing a specific control function.

Every line shall have a "double-knock" function built-in, providing a specific control function capability whenever two detectors on the line are triggered.

Any individual zone or detector in an alarm line shall be capable of being isolated without affecting the operation of the remaining zones or detectors in the line and without raising a fire alarm. However, during this condition an isolation indication per zone, shall be displayed in the central station.

Signalling and annunciation

General

Fire and fault signals shall be indicated visually and audibly in the central station. The indications shall be such that fire alarms and fault warnings can be clearly distinguished visually and audibly.

The internal audible signal device may be the same for both fire alarms and fault warnings.

All zone visual indicators shall be dual LED's - i.e. one LED per zone for fire and one LED per zone for fault. Common LED's for "fire" and "fault" conditions shall be provided. No incandescent lamps shall be used.

A LCD display shall be provided which shall indicate specific information about the status of the system. In an alarm condition it must show details of the first received alarm, and if more than one detector is in alarm, it may be possible to call each piece of information to the display.

Similarly, the LCD display must show relevant information regarding faults or isolated devices.

A facility shall be provided for calling-up information to the display, such as maintenance functions or isolating detectors and zones.

An LED test button for testing the function of all LED's on the front panel.

An "Alarm-Accept" button for silencing the local panel buzzer.

A "Reset" button for restoring the system to normal.

Remote Annunciation
Facilities must be provided for remote indication and control of all functions.

The system must be able to interface with wall mounted mimic panels, as well as desk mounted micro-computers and printers. Block plans must be mounted on each floor of the installation.

Normal Condition
When the central station is in the normal operating condition without any alarms or faults being displayed, a green LED shall indicate visually that the power is turned on.

Fire Alarm Condition
A fire alarm shall be indicated in the central station as follows:

- An intermittent audible indication
- A flashing "Alarm" indication on a central panel common to all zones.
- The LCD display must indicate the details of the first received alarm, indicating line, zone and detector number.

The audible signal shall be capable of being switched off from outside the central station. However, the visual alarm shall only be accessible after the front panel of the central station or central panel has been unlocked.

After the alarm has been accepted, by operation of a switch, the central "Alarm" visual indicator shall cease flashing and become steady. The zone visual indicator shall continue to flash until the alarm is reset.

When a new alarm is received by the central station the common alarm indicator on the central panel must revert from a steady indication to a "Flashing" indication. The

new alarm zone LED's shall also flash. No limitation shall exist for receiving a new alarm from another zone.

The control unit must have facilities for two independent Remote Signalling circuits. These circuits shall be suitable for potentially free or 24 Volt signalling and shall be monitored for short circuit, open circuit and earth leakage. They must be suitable for operating external alarm devices such as bells, hooters and visual flashing lamps.

A fire alarm shall be indicated outside the central station as follows:

Audible and optical alarm devices located as required throughout the building are triggered automatically and can only be switched off, after opening the central station.

Fault condition

Any fault warning shall be indicated in the central station as follows:

- A steady audible indication
- A steady "Fault" indicator on a central panel in the central station, common to all zones.
- One steady AMBER LED indicating the effected zones.
- A LCD display indicating the line number and detector number prior to where the fault occurs or the last functioning detector in the line. The audible signal shall be capable of being switched off from outside the central station. However, the visual alarm shall remain until the fault has been repaired.
- When a new fault condition is received by the central station, the audible alarm shall re-start automatically.
- An earth leakage indication shall be provided for the entire system.

Power failure

In the event of mains failure for a period in excess of 50 seconds, a power supply fault shall be indicated, audibly and visually, in the central station. The visual display shall be a separate AMBER LED. Any mains outages of less than 50 seconds shall automatically switch the load to the stand-by battery, but without an indication.

In the event of a fault occurring on the standby battery, even though it is not on load, a power supply fault shall be indicated, audibly and visually, in the central station. The visual indication shall consist of an AMBER LED.

System maintenance

General

The system shall be, as far as possible, self testing and maintenance free.

The control unit shall continually update the idle state of each detector, and indicate a "Maintenance Required" signal in the event that a detector sensitivity is too high or too low.

A log book must be supplied to log events and maintenance of the system.

Control Unit Test
The control unit shall have a test facility for the following:

- Simulation of short circuit, open circuit and fire alarm for each zone
- Individually.
- General simulation of earth leakage.
- LED test for all panel and zone LED's.

The control until shall have the facility for printing out, upon demand, the idle status of each detector on a line.

Field Tests
Detector Tests

The control unit shall allow for detector test and inspection by a single person.
The test alarms triggered on each detector by the inspecting person shall be indicated on the detector by a RED LED, and shall be automatically reset by the control unit. Alerting shall not take place.

Zones which are not switched to "inspection" mode shall remain ready for normal alarm procedure.

When testing lines equipped with only manual push button alarm boxes, it shall be possible for a single person to check each manual box individually for correct operation without disabling the function of the other alarm boxes in the line. An "Alarm Received" indication shall be transmitted by the central station to the push button under test, where it shall be indicated by a RED LED.

Alarm Tests

The control unit shall allow for the testing of all audible and visual alarm devices and control relays, to check correct functioning of these devices.

Acceptance Tests

The acceptance tests as stipulated in the "Acceptance Procedure for Fire detection Systems installed in Equipment Buildings" shall be strictly adhered to.

Where the system is installed elsewhere (non-technical buildings), the onus shall be on the Engineer/Contractor to stipulate the acceptance procedures. These procedures shall be for the user's approval.

System Power Supply

The output of the power supply shall be capable of sustaining an alarm from all the connected alarm lines simultaneously.

The power supply shall be an integral part of the control unit.

In the event of a failure of the 24V dc supply there shall be an automatic switch over to the stand-by battery supply without an interruption of the load and without activating a fire alarm.

The power supply unit shall be dimensioned in such a way, that it maintains the battery at fully charged state or is capable of re-charging the battery, discharged to cut-off voltage at the rated discharged current, to 80% of the achievable rated battery capacity within a period of 24h, besides supplying the power requirements of the alarm system in the idle condition.

The central control unit shall be protected against reverse polarity on the voltage supply side.

The unit shall be suitable for the use with a positively earthed dc power supply system.

Stand-By Battery

The stand-by battery must be capable of supplying the system in idle condition for the stated period of 24h plus an hour in alarm condition after the stated period.

The standby battery must be a maintenance free lead acid type.

Alarm Inputs from other sources

Alarm inputs from fire detectors and alarm initiating devices, which are provided by others, shall be incorporated by the Contractor to the central fire alarm monitoring system, provided by him.

Interface with Building Management System

The fire detection system shall be required to interface with the building management system. The protocol shall be specified in the detailed technical specification.

Guarantee

The contractor shall guarantee all equipment fitted for a period of 12 months. The guarantee shall include latent defects.

19. EARTHING AND LIGHTNING PROTECTION

General

All workmanship and materials used shall be of the highest standard and shall be carried out in accordance with the best modern practice, as determined by the Engineer.

The entire installation shall comply in every respect with the latest amended publication of the relevant specifications.

Definitions

Lightning Protection System

The whole system of conductors used to protect a structure from the effects of lightning.

Air Terminal

The part of a lightning protection system that is intended to intercept lightning discharges directly.

Down Conductor

A conductor that connects the air terminal (s) to the earth terminals (s).

Earth Terminal

The part of a lightning protection system that is intended to discharge lightning currents into the general mass of the earth.

Earthing Electrode

The part of an earth terminal which makes direct electrical contact with the earth.

Bond

A conductor that provides electrical connection between the lightning protection system and the metal work of the structure to be protected or between various parts of this metal work.

Joint

A mechanical junction between two conductors for purpose of providing electrical continuity between two parts of the lightning protection system.

Testing Joint

A joint in a down-conductor or in a bond connecting two sections of the lightning protection system so designed and situated as to enable measurements to be made of the resistance to earth or of electrical continuity of parts of the lighting protection system.

Detailed scope

The contractor shall have a specialist who will undertake the soil resistivity tests and submit a detail design based on soil resistivity results indicating the expected earth reading to the engineer for approval prior to commencement of the installation.

Each transformer shall have an earth mat that is connected to the earth point of the transformer.

The earth mat shall be provided by the successful Tenderer as close as possible to the distribution board. The earth electrode shall consist of 10mmØ solid copper conductor and treaded copper coated earth spikes bearing the SABS mark of approval. A minimum of 250µm copper coated mild steel threaded on both ends driven into the ground to a depth where the reading obtained on equipment as specified does not exceed 2Ω. The distribution board earth bar shall be connected to the earth by means of a bare stranded copper conductor of size equivalent to that of the main incoming cable.

Earth continuity between any point and an exterior earth connection shall be proven by a Meggar reading of zero, i.e. full continuity.

All light fittings, fixed appliances such as stoves, geysers, etc., switched socket outlets and steel or copper water pipes shall be suitably bonded to a good earth.

Should non-conductive water piping be used in buildings for hot or cold water, the geyser or heat pump earth must be bonded to the main earth in each distribution board and to the main water supply piping.

No exothermic weld connections are allowed.

The lightning protection system shall consist of an aluminium roof conductor system in the case of non-metallic roofs and metallic roofs with which do not conform with minimum SANS62305-3:2011 (as amended), linked via a series of aluminium down conductors to buried earth spikes and 10mmØ solid copper trench earths. In the case of metallic roofs, that conform with minimum SANS requirements, the roof shall be bonded to the buried earth spikes and trench earths by means of down conductors. The down conductors shall be spaced at a maximum of 20m apart around the entire building.

All conductors shall be in accordance with the requirements of BSS 1474 or American Standards Specification 6063. All aluminium conductors shall have a cross-section area of not less than 50mm^2 (domestic dwelling only) or 70mm^2 for all other applications. The dimensions of flat section conductors shall be a minimum of 20mm x 3mm. Where conductors are mounted in stand-off guides, the cross-sectional area of the conductor shall be not less than 70mm^2 to give adequate mechanical strength.

The conductor shall be mounted in aluminium alloy guides conforming to the material specification given above. The guides shall allow for free longitudinal movement of the conductor to cater for expansion and contraction of the system caused by temperature variation. The minimum thickness of any part of the guide shall not be less than 3mm. The guides shall be securely attached to the structure using two stainless steel screws and plugs; the use of plated screws is not permitted.

The conductor system shall be supported in guides so that an air gap exists at all times between the aluminium and the surface of the structure, the guides being seated upon plastic or other similar insulating material. Should conductors be installed directly upon the surface of concrete or cement plaster, an insulating strip is to be installed over their entire length to prevent contact between the two surfaces. Guides shall be installed to support the conductor at intervals not exceeding 1.2m horizontally or 1.5m vertically.

No part of an aluminium conductor system shall be allowed to come into direct contact with concrete or cement plaster as this may cause the aluminium to corrode.

Where conductors are installed horizontally without deviation from a straight line over long distances, expansion loops shall be provided at distances not exceeding 30m. These expansion loops shall have a cross-sectional area which is at least equal to that of the conductor.

Where external down-conductors are installed in areas which are readily accessible to the public, the lower ends of the conductors shall be enclosed in a semi-rigid insulating material. In the case of a circular section conductor this shall comprise a 2m length of 20mm diameter conduit. The conduit shall be securely attached to the wall by means of galvanized heavy duty steel saddles fixed with stainless steel screws and plugs, spaced at intervals not exceeding 1m. The ends of the conduit shall not be sealed.

Standard Procedure to be followed by the Specialist Contractor

a. Conduct a risk assessment on various structures and equipment, as required by the SANS Code of Practice.

b. Conduct resistance test measurements at areas where existing earthing has been installed and measure earth termination points connected and disconnected.

c. Conduct soil resistivity surveys where new installations are intended by means of the Wenner and fall of potential method.

d. Analyse from the surveys whether the ground conditions are in any way corrosive as per the SANS Code of Practice.

e. Block plan/site plan drawing to be provided so that required earthing can be marked up to upgrade wherever necessary.

f. Once the survey has been conducted and drawings marked up, etc., to provide quotation to upgrade wherever necessary.

g. Supply and install materials to structures and equipment wherever upgrading or new system may be installed to SANS requirements.

h. Conduct final resistance test measurements in presence of authorized personnel and issue an Earthing & Lightning Protection Report and Certificate/s.

i. Provide detail design of the complete earthing system complete with SANS10313 Lightning Protection System Installation Safety Report for acceptance by the Engineer.

The acceptance letter will be submitted by the Engineer.

All test procedures and recommendations will fully comply with the SANS Code of Practice 10313: 2010 in conjunction with SANS 62305-1-2-3-4: 2011 and IEC 62305-1-2-3-4: 2010.

19.1 JOINTS ABOVE GROUND

Circular section aluminium conductors shall be jointed by aluminium ferrules or lugs which are securely crimped into place. Aluminium lugs shall be bolted together using 10mmØ aluminium bolts and washers. The material specification for these components shall conform to that laid down above. Alternatively, heavily tinned copper lugs and ferrules may be used. The lugs should be joined together by means of 10mmØ copper, brass or bronze bolts and washers. Care should be taken to inhibit corrosion where dissimilar metals are used by thoroughly cleaning the surfaces of the metal before assembly and subsequently sealing the joint with an inert tenacious compound or tape.

Flat section aluminium conductors shall be joined by double riveting, using aluminium rivets which comply with the material specification laid down above. Alternatively, 2 x 6mmØ stainless steel bolts, nuts and washers may be used. Fold over type bends will not be permitted.

Down-conductors are to be terminated approximately 200mm above finished ground level. Circular section aluminium is to be jointed to a 70mm^2 (50mm^2 in the case of domestic dwellings) stranded copper conductor by securely crimping in place two heavily tinned lugs and bolting these together using 10mm diameter copper, brass or bronze nuts, bolts and washers.

Under no circumstances shall aluminium conductors be buried in the ground.

19.2 JOINTS BELOW GROUND

A joint in the stranded copper conductor which forms part of the earthing system shall be made by using a crimped copper ferrule clamp (not lugs), two copper line taps of suitable dimensions. The copper earth conductor shall be joined to an earth rod by clamping, using a standard earth rod clamp or copper line tap. No exothermic weld connections are allowed.

Joints made between dissimilar metals (i.e. copper conductor to galvanized steel water main), shall be thoroughly cleaned before assembly. They shall be rendered

watertight using waterproof adhesive tape or a suitable compound for a minimum distance of 200mm in all directions from the joint.

19.3 BONDS

Where it is necessary to bond the aluminium conductor to any other metallic surface, this shall be done by bolting or riveting. When attaching aluminium to a dissimilar metal the joints are to be thoroughly cleaned and sealed to prevent corrosion.

19.4 AIR TERMINALS FOR NON-METALLIC PITCHED ROOFS

Aluminium conductors are to be installed along all ridges of roofs and projections such as dormer windows, etc., terminating at the ends with conductors running downwards over the surface of the roof and the eaves. Non-metallic chimneys shall be protected by means of a finial of sufficient length to cover the chimney within a 45° angle struck downwards from its point. Alternatively it should have a conductor installed in the form of a closed loop upon the upper surface. The conductors are to follow the outer contour of the stack and shall be bonded at a convenient point to the nearest component of the air terminal system.

This bond may run in a horizontal or downward direction, but under no circumstances shall any part of it run above horizontal.

Conductors may be dead-ended (i.e. have one end free and unbonded), providing that the length of such a conductor does not exceed 10m and that the unbonded end is either at the same level or higher than the bonded end. This technique may be used where ridge conductors are installed over dormer windows, etc.

In all cases where metallic gutters have been installed along the eaves of a pitched roof, these shall be bonded to the air terminal system. Where metallic gutters do not exist, however, a conductor shall be installed over the surface of the roof at eaves level to which the remainder of the air terminal system is to be bonded, with the following exceptions:

a. Where the maximum distance from the ground level to the eaves of the building is less than 4m and the pitch of the roof is more than 1 in 2 (27° from the horizontal).
b. Where the maximum distances from ground level to the eaves is less than 7m and the pitch of the roof is more than 1 in 1.5 (34° from the horizontal).
c. Where the distance from the ground level to the eaves is more than 7m and the pitch of the roof is more than 1 in 1 (i.e. the included angle at the apex of the roof is less than 90°).

Under these circumstances eaves conductors need not be installed.

Any non-metallic objects which protrude above the general roof lines, such as Cape-Dutch gable ends, shall be protected as described above with a suitable air terminal system. Any metallic objects which protrude above the general roof line,

such as hot water expansion pipes shall be bonded as directly as possible to the nearest eaves conductor, gutter or other part of the lightning system.

These bonding conductors shall run in a horizontal or preferably a downward direction, from the vent pipe, etc., to the lightning protection system.

19.5 AIR TERMINALS FOR METALLIC PITCHED ROOFS

Buildings with roofs covered with electrically continuous metal sheets do not require separate air terminals but shall be earthed via down conductors generally as described in above. Any non-metallic objects projecting above the general roof line shall be separately protected as described above and bonded to the metal roof covering.

19.6 AIR TERMINALS FOR NON-METALLIC FLAT OR MONO-PITCHED ROOFS

For flat or mono pitched roofs of non-metallic construction the air terminal system shall consist of aluminium alloy conductors installed around the outer perimeter of each section of the roof structure. These conductors shall be installed on top of parapet walls if these exist. Lift motor rooms, tank rooms, penthouses, etc., which protrude above the general roof line shall have air terminal conductors installed around the outer perimeter of each roof slab or parapet wall. Any metallic objects which protrude above the roof line, such as expansion pipes, signs, flag poles, handrails, etc., shall be bonded directly to the nearest component of the lightning protection system.

It is not permissible for the ends of conductors to be bonded directly to the perimeter air terminal system if the latter is installed upon a parapet wall having a height exceeding 500mm above roof slab level. In these circumstances the conductors are to be bonded directly to the down conductors.

19.7 AIR TERMINALS FOR METALLIC FLAT OR MONO PITCHED ROOFS

Metallic flat or mono pitched roofs do not require separate air terminal conductors, providing that there is electrical continuity between the metallic roofing sheets. A metallic roof surrounded by a non-metallic parapet wall shall have conductors installed at the top of the parapet wall and these shall be bonded to the metallic roof at intervals not exceeding 20m. If the parapet wall is clad with metal over its upper surface, or a handrail is installed which affords good electrical continuity, separate air terminal conductors need not be installed. Under these circumstances the metal handrail or cladding shall be bonded to the metal roof covering at intervals not exceeding 20m.

All non-metallic covering such as slates, tiles, asbestos cement sheeting, etc., supported by a steel structure being electrically continuous throughout may be treated as being of a complete metal construction. In these circumstances no separate air terminal system need be installed providing the steel roof structure is bonded to earth at intervals given above.

19.8 DOWN CONDUCTORS FOR NON-METALLIC STRUCTURES

Down conductors shall be installed at regular intervals around structures and run as directly as possible between the air terminal and earthing system. They shall, where practicable, be positioned at the external corners of the structure. The maximum separating distance between down conductors around the perimeter of the structure shall not exceed 30m. In the case of very tall buildings having a slender base (i.e. chimney stacks, water towers, etc.), a minimum of two down conductors shall be installed.

The lower ends of down conductors are to be terminated and bonded to the earthing system. Under no circumstances shall aluminium conductors be buried underground. Test joints shall be provided between the down conductors and earthing system. Down conductors shall run vertically between the air terminal and earthing systems. Where this is impracticable, their course may be deviated to run at any angle up to and including horizontal.

Where it is necessary to run conductors horizontally over the upper surface of a structural protrusion, such as an exposed concrete slab, the conductor may run down vertically over the edge of the slab and return to the main structure, so that the distance between the upper and lower conductors exceeds one third of the length of the horizontal run. Looped down conductors are not permitted. Down conductors shall not run over the underside of large overhangs which are less than 6m above ground level, or other areas where people are likely to be present during a thunderstorm.

External or internal metallic rainwater pipes may be used as down conductors providing these are of substantial section and are jointed by screwing one length into another or welding. Thin gauge galvanized steel pipes whose sections are held together by friction, rivets or screws shall not form part of a lightning protection system.

19.9 DOWN CONDUCTORS FOR REINFORCED CONCRETE FRAMED STRUCTURES

The steel reinforcement of this type of structure may be used in place of down conductors. Where the reinforcing system is used, the air terminal system shall be bonded to it at a maximum of 30m intervals using steel clamps. This bond may be achieved by clamping, with a steel clamp, a steel conductor to a selected reinforcing bar, the opposite end of this conductor shall terminate at a corrosion resistant metallic terminal such as Grade 316 stainless steel.

The reinforcing system of prefabricated concrete buildings shall not be used unless special provision is made for bonding the various prefabricated sections together.

The terminals should be mounted flush with the face of the concrete. An aluminium alloy bond shall then be taken from the air terminal system and be connected to the stainless steel terminal by means of a heavily tinned crimp lug for circular section aluminium, or a suitable bi-metallic joint in the case of flat section aluminium. A similar system shall be used to bond the reinforcing system at

ground level to the earthing system at points directly below the air terminal bonds. Here copper conductors shall be used as the external bonding material.

Under no circumstances shall copper, or other non-ferrous material be allowed to come into contact with steel reinforcing bars, as this may cause severe corrosion and subsequent structural damage. The lightning protection system shall not be bonded to any part of the structure which is electrically isolated from the remainder of the building, i.e. cantilevered sections. In these circumstances, or where it is otherwise impracticable to use the reinforcing system, external down conductors shall be installed as above.

19.10 DOWN CONDUCTORS FOR STEEL FRAMED STRUCTURES

Where the framework of a building is constructed of structural steel columns, these may be used in place of down conductors providing the separating distance between them does not exceed 30m. The upper ends of the columns shall be bonded to the air terminal systems and the lower ends to the earthing system.

19.11 EARTHING BY MEANS OF VERTICALLY INSTALLED ROD TYPE ELECTRODES

Rod-type electrodes shall be driven into the ground at a position directly below each down connector. The maximum earthing resistance of each electrode or number of electrodes bonded to any one down conductor shall not exceed N x 30Ω, where N equals the total number of down conductors which are bonded to a common air terminal system, or 200Ω, whichever is the lower value.

The minimum horizontal separating distance between rod-type electrodes bonded together shall not be less than their installed depth. The upper ends of installed rod-type electrodes are to be terminated approximately 500mm below finished surface level. A 50mm^2 copper bonding conductor shall be installed to run between each earthing electrode system and the lower ends of the adjacent down conductors. A joint is to be made between each of these bonding conductors and the down conductors at a position approximately 200mm above finished ground level. These bonding conductors shall be installed in PVC conduit securely affixed to the wall. The length of this PVC conduit shall be approximately 600mm and shall be installed so that approximately 200mm protrudes above ground level, the remainder being buried into the soil.

19.12 EARTHING BY MEANS OF METALLIC WATER MAINS

Where two or three down conductors are installed the water mains may serve as an earth terminal for one of these. Where three of more down conductors are installed the water mains may serve as an earth terminal for two of these. Regardless of whether the water mains are used as an earth terminal or not, the incoming metal water pipe shall be bonded to the lightning protection earthing system underground.

19.13 EARTHING BY MEANS OF TRENCH TYPE ELECTRODES

Where the soil conditions prevent the satisfactory installation of rod-type electrodes, a trench earth system shall be installed. This method is to comprise a 70mm^2 stranded copper conductor installed horizontally into a trench at a depth of 500mm below finished ground level. The conductor is to follow the general outline of the structure to be protected and be installed 1m away from the outside walls. Where the building stands on rocky ground, the trench earth may be attached to the lower part of the wall in areas where rock protrudes through the soil. The conductor shall, however, be buried wherever possible as described above.

Each down conductor shall be bonded to the trench earth system as directly as possible by means of a copper conductor.

Trench earth systems shall have a maximum earth resistance of 30Ω. An isolated length of trench earth mat shall be bonded to the down conductor system in such a way as to reduce the length of dead-ends to the minimum.

Should trench earths be installed beneath pathways where people are likely to be present during a thunderstorm, a plastic, bitumastic or ceramic pipe shall be installed having a length similar to the width of the pathway and the trench earth conductor run inside it.

The maximum useful length of a dead-ended trench earth is 80m.

19.14 TESTS ON COMPLETION

The lighting protection of the installation shall comply with and shall be tested in accordance with SANS 10313. The installation shall be done by an approved and recognised specialist in the field of lightning protection and earthing.

The submitted price for the lightning protection system shall include all requirements for the detail design and entire installation, compliance with SANS 10313 and shall include all testing and the issue of safety and test certificates. Any additional cost required to enhance the earthing and lightning protection installation shall be paid direct from the project upon Clients approval or Clients representative.

20. TESTING AND INSPECTION

The successful Tenderer shall comply with the relevant requirements concerning registration of electricians, registration of the works, testing and inspection.

The successful Tenderer shall ensure that all equipment is installed and tested in full compliance with the requirements of the manufacturers of the equipment so as to ensure that the guarantees offered by the manufacturers are not compromised. The successful Tenderer shall familiarise himself in detail with the manufacturer's requirements prior to the installation of the equipment, and, where necessary, the installation work shall be carried out under the supervision of the manufacturer/supplier.

The successful Tenderer shall carry out continuity, earth leakage, earth loop impedance and insulation tests to ensure that the installation is functional and safe.

A full functional test will be carried out on the installation for a period to determine the satisfactory working thereof after completion of the works and before first delivery is taken. During this period the installations will be inspected and the successful Tenderer shall make good, to the satisfaction of the Engineer, any defects that may arise.

The successful Tenderer shall provide all instruments and equipment required for testing and any water, power and fuel required for the commissioning and testing of the installations at completion.

The successful Tenderer shall on completion of the tests, submit, in terms of the OHS Act No.85 of 1993 (as amended), a completed and signed Certificate of Compliance for Electrical Installations to the Clients Representative.

On completion of the Contract Works, the successful Tenderer shall remove all dirt and debris arising from the Contract Works from site, paying particular attention to roof spaces.

Only Tenderers registered with the Electrical Contracting Board of South Africa in accordance with Regulation 5 of the Occupational Health and Safety Act will be accepted and permitted to do work under this Contract. The requirements of Regulation 5(2) will be strictly enforced, and are repeated for convenience purposes:

"5(2) The Electrical Contracting Board of South Africa shall, free of charge, register as an electrical contractor and enter into a register kept for that purpose the name of any person who applies therefore in terms of sub-regulation (1) and who

(a) has a fixed address and has a telephone listed in his name; and

(b) employs an accredited person on a full-time basis, or is himself an accredited person."

An "accredited person" is defined in the Regulations as "……a person registered in terms of Regulation (9) (of the Act) as an electrical tester for single phase, an installation electrician or a master installation electrician, as the case may be". If, for any reason whatsoever, the successful Tenderer fails to comply with these statutory requirements during the Contract period, after having been accepted initially to do work under this Contract, the services of the successful Tenderer will be terminated in accordance with Clause 56 of the Conditions of Contract.

21. DRAWINGS AND DOCUMENTATION

The successful Tenderer shall provide four sets of "as built" drawings and operational manuals for all equipment installed in terms of this specification, the

drawings and Bill of Quantities. One set shall be provided to the Clients Representative and three to the Employer.

The maintenance and operational manuals must be complete with an index and be bound in a suitable hard cover binder such as Bantex A4 Ring Binders. The files must be provided with stiff dividers on which the relevant sections are indicated and are to be in printed or typed format. Drawings shall be housed in plastic pockets in the file, and only one (1) drawing per pocket will be allowed.

In addition all “as built” drawings must be stored on Compact Disk (CD) in .dwg format and must also be submitted with the manuals.

All schematic electrical “as built” drawings of distribution boards must be laminated and attached to the inside of the doors with double sided tape.

The main distribution board/electrical panel schematic diagram in the low voltage plant room or in other plant rooms as well as the schematic site reticulation layout, if applicable, must be suitably framed with Perspex and be mounted in the plant room in a position as indicated on site.

The maintenance and operational manuals must consist of the following sections where applicable to the project:

- Operations section, covering description of the system and functioning thereof, all starting up and stopping procedures, fault-finding procedures, pre-start checks and equipment running checks.

- Comprehensive data log sheets to be kept by the user of the system.

- General system description and general information schedules of plant and equipment, such as description of equipment, model number, capacity, electrical requirements of equipment, name and address of supplier, name of manufacturer.

- Design information: Design data sheet containing all design and selection parameters, calculations, selection curves, etc. Settings and values recorded during commissioning. Manufacturers’ brochures, pamphlets, pump curves, etc.

- Maintenance data and schedules: The lapse of time between services and the description of service requirements for each part, piece of equipment or item installed under the Contract. This section must also include the detailed daily, weekly, monthly, three monthly, six monthly and yearly preventative maintenance instructions and checklists.

- Manufacturers’ literature indication lubrication points, lubricants to be used and other data referred to above.

- Commissioning data of all equipment and systems with all set points listed in table format relating to the specific piece of equipment and/or system.

- All other data relating to other components forming part of the system/reticulation such as valves, diffusers, medical gas outlet points, etc.

- Critical spare parts list for all equipment.

- All test certificates (any certificates required in terms of the installations as pertaining to the project), compliance certificates, lightning protection certificates, certificates of construction of electrical panels.

- Schematic wiring diagrams and equipment ratings of all electrical panels and distribution boards.

- All “As-Built” drawings of mechanical and electrical installations pertaining to the project. “As-Built” drawings must be the true reflection of the installation as on site and must include the actual particulars of the equipment as installed on site and must be signed and dated by the responsible consultant and must be marked “AS BUILT”.

- All “As-Built” drawings, including wiring diagrams, must be produced in Autocad format and be stored on CD as listed above.

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C 3.2.3 OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

PROJECT SPECIFIC OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

FOR

GENERAL BUILDING

MANAGED ON BEHALF OF

(THE "CLIENT")

Tsolo Agriculture and Rural Development Institute

PREPARED BY:

Lumcus Training and Consulting PTY Ltd

PROJECT:

SCMU8-22/23 · 0063

300 Seater Exam Hall at Tsolo Agricultural and Rural Development Institute

KEY ROLE PLAYERS

Client	**Tsolo Agriculture and Rural Development Institute**
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Principal Agent	**Intsika Architects**
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Contact Number:	082 872 8748
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Health & Safety Agent	**Lumcus Training & Consulting Cc**
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PROJECT SPECIFIC OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

LIST OF ABBREVIATIONS

AIA	Approved Inspection Authority
BoQ	Bill of Quantities
CC	Compensation Commissioner
CHS	Construction Health and Safety
CHSA	Construction Health and Safety Agent
CHSO	Construction Health and Safety Officer
CR	Construction Regulations (Gazette 10113 of 07/02/2014)
TARDI	Tsolo Agriculture and Rural Development Institute
DMR	Driven Machinery Regulations
DoL	Department of Labour
FEMA	Federated Employers Mutual Association
GAR	General Administration Regulations
GSR	General Safety Regulations
HCSR	Hazardous Chemical Substances Regulations
HIRA	Hazard Identification Risk Assessment
H&S	Health and Safety
ER	Engineer's Representative
LI	Labour Intensive
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
PA	Principal Agent
PSHSS	Project Specific Health and Safety Specification
PC	Principal Contractor
PPE	Personal Protective Equipment
SANS	South African National Standards (Authority)
SDS	Safety Data Sheet
SMME	Small, Micro, Medium Enterprise
SWP	Safe Work Procedure
COVID-19	Corona Virus Disease 2019
ECO	Environmental Control Officer
DMA	Disaster Management Act
MDSD	Material Safety Data Sheet

DEFINITIONS

The definitions used will be those set out in the Regulation Gazette No 84 of 2014 7 February 2014 with the following additions:

Client: Tsolo Agriculture and Rural Development Institute

Construction Health and Safety Agent:
A competent 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)

TARDI: Tsolo Agriculture and Rural Development Institute

Designer: Means a competent person appointed by the Client as Agent to design, supervise and monitor construction on their behalf.

Hazard: Source of exposure to danger

Hazard Identification and Risk Assessment (HIRA) 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 Agent:
Means any person who acts as a representative for the Client in managing the overall health and safety work as their responsible person.

Health and Safety Plan:
Means a documented plan which answers to the Site specific Health and Safety Specification; including all the supporting documentation that indicate how the Principal Contractor or Contractor plans to manage H&S for the duration of the Contract.

Induction Training:
Means once off introductory training on general health and safety issues given to all employees and visitors to the site before commencement of work on site.

Principal Agent:
Means a competent person appointed by the Client to design, supervise and monitor the construction on their behalf.

Risk: Means the probability or likelihood that a hazard can result in injury or damage.

Regulation/s:
Shall mean the relevant regulation/s promulgated in terms of the Occupational Health and Safety Act, No. 85 of 1993.

Site: Means the area in the possession of the Principal 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 Principal Contractor, and approved for such use by the Designer.

The Act: Means, unless the context indicates otherwise, the Occupational Health and Safety Act, No. 85 of 1993 and Regulations promulgated thereunder, as amended.

COVID-19: means the Novel Coronavirus (2019-nCov) which is an infectious disease caused by a virus, which emerged during 2019 and was declared a global pandemic by the WHO during the year 2020 that has previously not been scientifically identified in humans

Disaster Management Act:
means the Disaster Management Act, 2002 (Act No. 57 of 2002);

Adequate space: means not more than one person per square meter of floor space;

Gathering: means any assembly, concourse or procession of more than 100 persons, wholly or partially in open air or in a building or premises;

Isolation: means separating a sick individual with a contagious disease from healthy individuals without that contagious disease in such a manner as to prevent the spread of infection or contamination

Worker: means any person who works in an employer's workplace including an employee of the employer or contractor, a self-employed person or volunteer 3;

Workplace: means any premises or place where a person performs work;

Quarantine: means separating asymptomatic individuals potentially exposed to a disease from non-exposed individuals in such a manner as to prevent the possible spread of infection or contamination;

Covid 19 Compliance officer:
Person responsible for the duties as outlined in regulation 16(6) of the said Notice COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020.)

WHO: means the World Health Organisation

KEY REFERENCES

Occupational Health and Safety Act No. 85 of 1993 and Regulations (as amended)
Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)
Joint Building Conditions of Contract (JBCC)
Construction Specifications & Standards 6.0 for Southern Africa. Hans Wegelin 6th Edition 2010
SANS Code 10400
Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)
https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
Advice and guidance from WHO on COVID-19
https://www.who.int/emergencies/diseases/novel-coronavirus-2019
https://www.epi-win.com/
Covid 19 Restriction Regulations 2020
Disaster Management Act, of 2002
Government Gazette No. 43257, Vol, 658 Covid-19 Occupational Health and Safety Measures in Workplaces Covid-19 as well as the
Risk Adjusted Strategy Regulation- issued by the Department of Cooperative Governance
Sector Guidelines
Municipal By Laws

SCOPE OF WORK: 300 Seater Exam Hall Tsolo Agricultural and Development Institute

- Building Works
- Electrical and Mechanical Work
- External Site Works
  - Site Clearance
  - Bulk Earthworks
  - Parking areas, Kerbs, walkways, paving
  - Soil Drainage including Manholes
  - Storm water drainage
  - Water Reticulation
  - Fire Services and Reticulation
  - 10,000 Water Storage Tanks

Security Fencing

Landscaping

External Site Area Lighting

1. PREAMBLE

Each year fatalities, serious injuries and poor attitudes of Contractors mar the reputation of the Construction Industry. TARDI has a responsibility to limit its risk by ensuring a zero tolerance and better practice approach to Contractors and those affiliated to a particular project. Thus a high premium is placed on the health and safety (H&S) of TARDI stakeholders, which include its employees, professional service providers, public and its physical assets. The responsibilities that the Department and relevant stakeholders have toward its employees are captured in, but not limited to this document. The responsibilities stem from both moral, civil and a variety of legal obligations. The Principal Contractor is to take due cognisance of the above statement.

TARDI, as the Client and where there is an appointed CHS Agent on its behalf, shall provide a project specific Health & Safety Specification (PSHSS) for the project and provide the Principal Contractor/s making a bid or appointed to perform construction work for the project, or parts thereof.

1.1 Purpose of the Project Specific Health and Safety Specification (PSHSS)

The PSHSS is a performance specification to ensure that the Client and any bodies that enter into formal agreements with the Client viz. Agents, Professional Service Consultants (Engineers, Quantity Surveyors and Architects), Principal Contractors and Contractors achieve an acceptable level of OHS performance. No advice, approval of any document required by the PSHSS, such as hazard identification and risk assessments, or any other form of communication from the Client shall be construed as acceptance by the Client of any obligation that absolves the Principal Contractor from achieving the required level of performance and compliance with legal requirements. Furthermore, there is no acceptance of liability by the Client, which may result from the Principal Contractor failing to comply with the PSHSS, i.e. the Principal Contractor remains responsible for achieving the required performance levels.

A Mandatary Agreement in terms of Section 37.2 of the OHSA will be signed between parties prior to any works commencing.

The PSHSS highlights the aspects to be implemented over and above the minimum requirements of current legislation. Requirements may be changed should new risks or issues are identified that could not have been foreseen during the design phase of the project, or during the construction phase. Any new legislation or standards (legislated, or determined by the TARDI) that are promulgated or accepted during the contract will automatically be applied.

Environmental management shall receive due attention as per the requirements of the Environmental Control Officer (ECO), but will be managed by the ECO directly.

It should be noted that this OHSS in no way relieves the Contractor of any of his responsibilities set out in the Act and Regulations

1.2 Implementation of the Project Specific Occupational Health and Safety Specifications (PSHSS)

The project specific H&S specification (PSHSS) forms an integral part of the Contract, and PCs are required to make it an integral part of their Contracts with Contractors and Suppliers. A PSHSS will be available for each level of Contract and Contractor and must be complied with.

This specification must be read in conjunction with the OHSA, Regulations (as amended) and any other standards relating to work being done and ensure compliance thereto. The information relative to the scope of the project, the works etc. are detailed in the tender, are to be considered when developing the H&S plan and associated documentation. The summary of risks is included in Section 2 of the PSHSS.

The OHSA S.37.2 Mandatory Agreement must be fully completed by the PC, supplied by the Client. These documents shall be deemed to form part of the returnable Contract Documents.

No work may commence without written approval of the H&S plan by the CHS Agent, or the responsible person in TARDI.

Should there be design changes, or change in the scope of works, an amended PSHSS may be issued. Where amended PSHSS are issued, the PC will be required to ensure a resubmission of an amended H&S plan for approval. Further to this, the PC must ensure that similar information must be provided as it applies to the works to all their Contractors, within 5 working days following notification thereof. Such design changes.

The CHS Agent will visit the project as deemed necessary by the Designer and the CHS Agent to ensure compliance and limit risk. All activities on the site and all appropriate documentation will be monitored and reported on to the Client and the Designer.

Non-conformances will be issued, and penalties or work stoppage will be issued where appropriate. Communication between the CHS Agent and the PC will be through the Designer (or Client's responsible person) as determined at the commencement of the project.

1.3 Requirements at Tender Stage

Tenderers are required to submit a project specific pre-tender H&S plan with their Tender submission The documentation submitted will be used to assess the competence of the tenderer, as required in the CRs, therefore the information submitted needs to be complete and as close as possible to the final product.

Adequate pricing for H&S is required, and the appropriate section in the BoQ is to be completed. Failure to do so could result in the Tender being regarded as non-responsive.

The PC shall ensure adequate information is submitted as supporting documentation with his completed Tender. Such information will be assessed against the criteria listed and a score provided to the Bid Award Committee (BAC) for consideration. Failure to provide such information could render the tender application non-responsive.

A project specific H&S Plan in response to this PSHSS will be subject to approval by the CHS Agent. This must include all supporting documentation as required to verify the H&S system:

- A declaration to the effect that the Principal Contractor has the competence and necessary resources to carry out the work safely in compliance with the Occupational Health and Safety Act and its Regulations;

- A valid Letter of Good Standing;
- Incident Investigation Reports for other projects of a similar nature undertaken by the tenderer
- Claims ratio receipt from FEM or the Compensation Commissioner for the previous review period;
- Detailed technical method statements for approval by the Designer and appropriate risk assessments and safe work procedures for approval by the CHS Agent or Client:
    - Site establishment including:
        - Clearing and grubbing;
        - Exposure of services, power, telecommunication etc.;
        - Arrangements for hoarding,
        - Demarcation and hoarding between construction activities and the operational buildings and offices
    - Demolishing existing structures;
    - Excavating
    - An emergency plan indicating how and where emergencies will be handled
    - Working at heights

Further method statements are to be submitted prior to, and during the project where changes or new work is required, and the approval of the Designer/Client is required before work on that aspect or activity can commence The CHS Officer is to be included in production planning sessions/meetings to ensure that the appropriate risk assessments, safe work procedures and communication required are available and completed timeously. Penalties will be applied should this not be adhered to, and deemed a serious offence.

2. GENERAL REQUIREMENTS

2.1 Summary of Risks identified during Design

The intention of the summary of findings from the design baseline risk assessment is to highlight the residual risks identified during the design phase. The full design risk assessment can be found in the tender document.

The summary of risks provided is to point the contractor towards some risks he may not be aware of during tendering stage and while developing his formal risk assessments for the project.

The design risks and the management thereof should be included in the Principal Contractors (PC) risk assessments. Where there are other Contractors appointed to do work, the PC is to ensure that Contractors include such information in their risk assessments.

The summary is to be developed following the completion of the Design baseline risk assessment, and to include the residual risks as they apply to the project. The items noted are for information only and must be expanded on as required by the project.

ACTIVITY	HAZARD
Site establishment	Incorrect equipment, haphazard congestion Institute employees as well as members of the public can enter the site
Roof works	Falling from heights Materials falling from heights
Demolishing	Objects falling Personnel falling Structure collapse
Scaffolding	Personnel falling Equipment falling Structure collapse
Handling of material	Removing articles from delivery truck Waste material Incorrect storage of material
Ladders	Person falling off ladders Tools falling from person
Labor work on wet surfaces	Falling off or through elevated structures Collapse of structure onto a person
Perform work outdoors in windy conditions	Falling off or through elevated structures including support work
Storage of material and equipment	Cluttered and congested work areas due to poor/bad housekeeping
Waste	Accumulation of waste on site Poor/bad housekeeping
Site security after hours	Institute Employees; Members of public entering the site after hours
Delivery of material Movement of construction plant and vehicles	Inadequate traffic control Institute employees and public can enter area
Working at heights	Inadequate fall arrest equipment Incompetent /unfit /untrained workers Unsafe equipment
Barricading/ hording	Institute employees, animals and members of the public can enter the construction site. It should be noted that this will be a fully operational facility
Plant and vehicles	Personnel struck by Employees struck by Property damage
Site Office	Delivery with crane, no load test, no competency,
Poor Hygiene	Health related illnesses including Covid-19
Lack of Social distancing	Contracting Covid-19

2.2 Specified Hazardous Chemical Substances

The following lists of products or substances are those which have been identified as likely to be used on the project. This list is not inclusive and other products may be considered. Where the PC is likely to supply the product as the product has not been specified, materials data sheets (MDSs) need to be considered prior to all selections.

PRODUCT	POTENTIAL HEALTH OR OTHER RISKS
Cement	Hand mixing may occur, will be used for structures, stabilizing. 50kg bags delivered on pallets, ergonomic risk from handling, dust exposure, chromates. Eye, skin and respiratory irritant
Shutter Oil	Usually hand application prior to placing formwork in position. Volatiles present. Skin and respiratory irritant.
Retro-reflective Road paint	High levels of volatiles, Products have narcotic effect
Lime	Dust, eye and respiratory irritation
Petrol/diesel/lubricants	Storage tanks/ bowsers on site. Fire, spillage, fumes
Superphosphate fertilizers	Eye, respiratory and skin irritant
Limestone ammonium nitrate fertilizer (LAN)	Prolonged skin or eye contact could cause irritation. Explosive and will release toxic fumes if heated
Formula 2:3:2 fertilizer	Prolonged skin or eye contact could cause irritation. Explosive and will release toxic fumes if heated.
Creosote (pre-treated poles)	Eye and skin irritation and minor burns, carcinogen
Herbicides and ant poison	Type not specified but will be used. Principal Contractor to ensure use of MSDSs and appropriate protection measures
Epoxies and epoxy resins	Type not specified but will be used. Principal Contractor to ensure use of MSDSs and appropriate protection measures
Coatings	Type not specified but will be used. Principal Contractor to ensure use of MSDSs and appropriate protection measures
Grouts	Will be determined by the Principal Contractor; various grouts will be required, cementitious or other, may contain silica (crystalline - quartz), hexavalent chromium, respiratory, skin and eye irritant
Sanitizer 70% Alcohol	Eye and Skin irritation, harmful if swallowed, respiratory complications, hormone problems, Flammable when heated

3. OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

3.1 Structure and Organization of H&S Responsibilities

3.1.1 Application for a Construction Work Permit

The Client (TARDI's) appointed Health and Safety Agent must acquire a "Construction Work Permit" from the Department of Labour

.

Work may not commence without the "Application for a Permit to do Construction Work" form being completed by the Client and accepted by the Department of Labour. This includes, inter alia, the Contractor's Health and safety Plan as accepted by the Client

It should be noted that this OHSS in no way relieves the Contractor of any of his responsibilities set out in the Act and Regulations

The provincial director at the Department of Labour will issue the permit in writing to perform construction work within 30 days of receiving the construction work permit application and must assign a site-specific number for each construction site.

The contractor must ensure that the site-specific number issued by the Department of Labour must be conspicuously displayed at the main entrance to the site for which that number is assigned

4. HEALTH AND SAFETY PLAN FRAMEWORK

The H&S aspects related to the project outlined in the previous sections are to be taken into account when drawing up the H&S Plan. The PC is required to demonstrate competence by providing an H&S system that will address the requirements of the project.

The current legislative requirements, SANS codes, SANS 10400 and any other standards that may guide practice are to be taken into consideration. The following aspects must be addressed in the H&S Plan, as they have been identified in section 2, as playing a role in reducing the overall risk of a particular activity, or section of the project. The CHS Agent may from time to time request additions or systems as they relate to the works or legislative requirements at the time.

The PC is to prepare a site layout drawing to indicate at least the following:

- The positions of site offices of all Contractors, toilets, drinking water and worker rest areas;
- Indicate the positions of emergency personnel and equipment (fire, first aiders, first aid posts);
- Protection of plant and pedestrians, indicate parking, and
- Storage areas (materials and equipment, waste etc.)
- Access and egress to site for deliveries and intended temporary traffic management
- Emergency assembly point

Such layouts are to be updated regularly throughout the project.

4.1 Appointment of Competent Site Personnel

The CEO (OHSA S16.1) of the PC will take overall responsibility for the appointment of competent site staff for the duration of the project. Should the CEO not be personally involved in the project, the H&S responsibilities are to be delegated to the Site Agent (OHSA 16.2). Knowledge and training in H&S is required, and certificates indicating H&S training as well as experience to be included in CVs.

All other legal appointments are to be made with relevance to the type of work required and kept current with the project programme. The construction team is to ensure the appointed CHS Officer is kept up to date with all planned activities, to ensure all H&S requirements are met.

All construction/technical method statements are to be generated by senior site personnel, and the appropriate risk assessments developed therefrom in conjunction with the CHS Officer.

The Occupational Health and Safety Plan shall include the following, but is not limited to the following key appointments:

4.1.1 Construction Supervision

Competent Construction Managers (CR8.1) will be appointed to manage part or all of the works and have training and/or experience in the area of responsibility. The Construction Manager may not hold any other position on the site staff All site supervisors must show evidence of appropriate training in H&S, and an understanding or training in areas of responsibility (i.e. risk assessments, method statements etc.).

Multiple competent Assistant Construction Managers (CR8.2) may be appointed where justified by the scope and complexity of the works.

Curriculum Vitae (CVs) are to be submitted for approval by the Designer, and/or Client. The Supervisor will be held responsible for the safety of working teams and subordinates, housekeeping and stacking and storage of materials.

If the Construction Manager (CR8.1) changes throughout the project. The Principal Contractor must notify the client as well as the Department of Labour two weeks prior to commencement of work activities by means of a new Annexure 1, Appointment letter as well as proof of competency.

4.1.2 Construction Health and Safety Officer

The PC will employ at least one competent, full-time CHS Officer (CR8.5) for the duration of the contract. The CHS Officer's CV is to be submitted for approval by the CHS Agent or the Client, at time of tender. The PC is to ensure adequate resources are provided in order to undertake all responsibilities (i.e. mobile phone, computer and internet access, vehicle etc.) Qualifications shall include at least Grade 12 SAMTRAC/NEBOSH/Diploma in H&S qualifications or similar, with exposure to civil engineering and building that is appropriate given the level of project complexity preferably in an OHS capacity. He should also have undergone training in the Act and Regulations. In the case of a contract where contractors are employed, the CHS Officer must have a competence to evaluate the Contractors Health and Safety plans.

Proof of Full registration as a Construction Health and Safety Officer with SACPCMP must be supplied.

This person may not hold any other position on the site staff.
The site supervisor may not act as the CHS Officer.
The CHS Officer/s will be held responsible for all H&S on the project.

- Senior site staff and supervision, Contractors are to follow systems, instructions etc. given by the CHS Officer at all times;
- No new Contractors may commence work without approval or following the H&S plan as submitted, and
- No inductions of Contractor staff until the H&S documentation is approved by the CHS Officer.
- The CHS Officer/s may not be removed or replaced without the approval of the CHS Agent, nor may the site be left unattended for more than 1 day without adequate, competent cover.

A monthly report of all H&S activities and incidents is required by the end of the first week of each month, or at a date agreed to by the CHS Agent/Client and the CHS Officer. An example of the monthly report is attached as an Annexure C.

The CHS Officer will be responsible for collating the H&S documentation at the close out of the project in electronic format. A list of the typical aspects that should be provided is available as Annexure B to this document. The PC is to ensure that all Contractors documentation follows the same requirements and closed out H&S documentation must be completed and be available with the close out of the main contract in electronic format.

If the CHSO is replaced the Principal contractor is required to submit the following documentation for approval by the Client and appointed Pr. CHSA at least two weeks before:

1. Applicant CV
2. Applicant Competency
3. SACPCMP Registration Certificate

Failure to do so will be considered a serious offence and penalties /stoppage of site will apply.

4.1.3 Covid-19 Compliance Officer

Due to the Covid-19 Pandemic the PC will appoint a Compliance Officer responsible for the duties as outlined in regulation 16(6) of the said Notice COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS),2020 as well as The Disaster Management Act and Sector Guidelines. The Compliance Officer will always ensure compliance with the required COVID-19 regulations to keep employees up to date of any changes and ensure adherence.

4.2 Health and Safety Representatives and H&S meetings

H&S Representatives representing workers and Contractors are to be appointed following the startup of the project, irrespective of the number of workers on site. The appointed H&S Representatives are to be actively involved with H&S and will assist the CHS Officer and site management in meeting legislative duties.

The CHS Officer shall further ensure that H&S is discussed at all internal production or progress meetings. Issues arising from the CHS Agent audits are to be discussed, as well as all H&S related issues.

Social distancing will be practiced at all times during required meetings in a well ventilated are with all the Covid-19 requirements in place.

4.2.1 Health and Safety Meetings

- Check for the advice from the authorities in the community where you plan to hold the meeting or event. Follow their advice.
- Develop and agree a preparedness plan to prevent infection at your meeting or event.
- Consider whether a face-to-face meeting is needed. Could it be replaced by a teleconference or online event?
- Could the meeting or event be scaled down so that fewer people attend?
- Ensure and verify information and communication channels in advance with key partners such as public health and health care authorities.
- Pre-order sufficient amount of supplies and materials, including tissues and hand sanitizer for all participants. Have surgical masks available to offer anyone who develops respiratory symptoms.
- Actively monitor where COVID-19 is prominent.
- Advise participants in advance that if they have any symptoms or feel unwell, they should not attend.
- Make sure all organizers, participants, caterers, and visitors at the event provide contact details: mobile telephone number, email and address where they are staying. State clearly that their details will be shared with local public health authorities if any participant becomes ill with a suspected infectious disease. If they will not agree to this, they cannot attend the event or meeting.
- Develop and agree a response plan in case someone at the meeting becomes ill with symptoms of COVID-19 (common symptoms but not limited to: dry cough, fever, tiredness).
- This plan should include at least:

    Identify a room or area where someone who is feeling unwell or has symptoms can safely be isolated

    Have a plan for how they can be safely transferred from there to a health facility.

    Know what to do if a meeting participant, staff member or service provider tests positive for COVID-19 during or just after the meeting

    Agree to the response plan in advance with your partner healthcare provider or health department

4.2.2 During the Health and Safety meeting or event

- Provide information or a briefing, preferably both orally and in writing, on COVID-19 and the measures that organizers are taking to make this event safe for participants.
- Build trust. For example, as an icebreaker, practice ways to say hello without touching.
- Encourage regular handwashing or use of an alcohol rub by all participants at the meeting or event

- Encourage participants to cover their face with the bend of their elbow or a tissue if they cough or sneeze. Supply tissues and closed bins to dispose of them in.
- Provide contact details or a health hotline number that participants can call for advice or to give information.
- Display dispensers of alcohol-based (70% content) hand rub prominently around the venue.
- If there is space, arrange seats so that participants are at least 2 meters apart. Not more than 50 persons at a time.
- Open windows and doors whenever possible to make sure the venue is well ventilated.
- If anyone who starts to feel unwell, follow your preparedness plan or call your hotline.
- Depending on the situation in your area, or recent travel of the participant, place the person in the isolation room. Offer the person a mask so they can get home safely, if appropriate, or to a designated assessment facility.

4.2.3 After the Health and Safety Meeting

- Retain the names and contact details of all participants for at least one month. This will help public health authorities trace people who may have been exposed to COVID-19 if one or more participants become ill shortly after the event.
- If someone at the meeting or event was isolated as a suspected COVID-19 case, the organizer should let all participants know this. They should be advised to monitor themselves for symptoms for 14 days and take their temperature twice a day.
- If they develop even a mild cough or low-grade fever (i.e. a temperature of 38 degrees C or more) they should stay at home and self-isolate. This means avoiding close contact (1 meter or nearer) with other people, including family members. They should also telephone their healthcare provider or the local public health department, giving them details of their recent travel and symptoms.

Minutes are to be kept for all H&S interventions and meetings. Failure to do so will be deemed to be a moderate offence.

4.3 Appointment of Competent Contractors

The Principal Contractor is to ensure compliance with the Client's minimum standards and all legislative requirements. The same H&S standards required of the PC are to be applied to all Contractors. An index of all Contractors and Suppliers is to be on file and kept updated at all times. The PC is to ensure there is sufficient funding for H&S compliance by each Contractor.

The following minimum aspects are applicable to any Contractor appointed:

- The CHS Officer is to ensure a Contractors appointment and approval of H&S documentation at least seven (7) working days prior to commencing work.
- The contractor should take note of the required workload of the appointed CHSO in relation to the appointed SMME's
- No Contractor may work under the PC's Compensation registration number. If required, the PC may assist SMMEs with their registration with the Compensation Commissioner. However, such Contractors will not be able to commence work until proof of registration or Letter of Good Standing has been received.

- No work may commence without Mandatary agreements between parties in place.

The following aspects are applicable to Suppliers or short-term works (surveying, repairs, servicing, deliveries etc). Cognisance is to be taken of the level of risk involved and the CHS Officer is to ensure the level of H&S documentation is appropriate:

- Signed Mandatary agreements in place
- Valid Letter of Good Standing
- Method statements and risk assessments
- Available information relative to:
    - Load testing and registers for cranes or lifting devices
    - Medical certificates of fitness
    - Safety data sheets (SDSs)

Failure to provide written approval of H&S documentation will be considered a serious offense, and could result in aspects of, or all the activities being stopped, and penalties implemented.

5. GENERAL RISK MANAGEMENT

5.1 Health Risks and Medical Surveillance

As some products use in the building work have not been identified, the PC is to ensure the CHS Officer and all supervision is responsible for ensuring the safe use of such products, and their inclusion into method statements and risk assessment. The appropriate SDSs are to be obtained for all products and used to develop the H&S documentation as they relate to the works.

Many of the processes may be labour intensive and ergonomic risks are to be noted. All workers (including Contractors) are to be included in the medical surveillance programme.

Workers will be exposed to noise, dust, and physical risks from extended periods of work of a repetitive nature, materials specified and the general nature of the works.

Environmental monitoring results and risk assessments are to be made available to the occupational health professionals doing the medical surveillance. The use of occupational risk exposure profiling (OREPS) and job descriptions are to be used to determine specific exposures for management.

All permanent workers (including those of Contractors) are required to be in possession of a medical certificate of fitness prior to commencing work.
Medical surveillance will commence at pre-employment. All workers (including Contractors) are required to be in possession of a medical certificate of fitness prior to commencing work. Annual medical surveillance is required (unless identified as being required more frequently), as well as an exit medical. Arrangements for keeping medical records for the required time are to be noted. It is preferable that the PC has a medical surveillance plan. Full medical records are not to be placed in the H&S file. A procedure for managing the medical records which require safekeeping for prescribed periods are to be addressed
. Given the potential health risks the following aspects are to be included in each medical surveillance intervention:

- Full medical, surgical and occupational history;
- Full physical examination of all systems; and
- Referral if required for the management of identified health issues that may affect the worker.

Specific testing for existing conditions and limitations relative to exposure could include, but are not limited to:

- Audiometry (hearing tests); and

- Any other tests identified as relevant from chemical or specifically identified risks of exposure

No employee/ contract worker will be allowed on site without a valid medical certificate of fitness

Any person who contracts the Covid-19 virus may need to be reported to the Compensation Commissioner as an occupational disease where their work is to monitor and in contact with others. Such details are provided in the Compensation for Injuries and Diseases Act (COIDA).

Isolation of workers who have a temperature or any symptoms, and removal to the closest facility for testing and treatment, through the numbers provided. The PC is to ensure their policy on this includes such information.

Workers will be required to complete COVID-19 questionnaires prior to returning to site. Any worker with any symptoms is not to return to work or notify the PC of same.

Failure to do so will be considered a serious offence.

5.1.1 General Environmental Conditions

Compliance with the Environmental Regulations (as amended), among others is required.
Environmental monitoring of ventilation, lighting and dusts may be deemed to be required by the Approved Inspection Authority used to measure the environment. Copies of the relevant reports and actions taken in respect of these are to be placed in the H&S file.
Testing and reporting for airborne silica as required by the 2008 amendment to the HCS Regulations is required.

5.1.2 Noise Risks

All plant from plant hire companies (suppliers) or that of the PC is to be compliant with the Noise Induced Hearing Loss Regulations. Plant identified that has not been tested and marked for noise emissions will result in having to be tested at the Contractors or PCs expense. Failure to do so within a reasonable time period will result in such plant being removed from site.

Audiometric testing of all workers is noted as required in the medical surveillance programme for all permanent workers prior to work commencing. Temporary labour working in identified noise areas will require testing if the noise levels are indicated on plant or through processes as greater than 85dB. Audiometry records are to be available in the H&S file.
Suitable SANS approved hearing protective equipment shall be issued and worn. Where several items of construction plant are in operation at or near to each other, the noise zone for the combined plant should be established and suitable hearing protective equipment used within this zone
Failure to do so will be considered a serious offence.

5.2 Emergency Procedures

An emergency plan and procedure that is appropriate to the risks is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan may be adapted should new information or risks are identified.

The contractor will take into consideration the existing emergency plan and procedures of the Existing Institute.

The procedure shall detail the response plan in relation to the works, and include at least (but are not limited to) the following key elements:

- Appointment of a competent emergency response co-ordinator
  - Fire;
  - Public injury, Motor vehicle accidents;
  - Falls from heights;
  - Serious injury to workers (medical or work-related); and
  - Any other major risks identified during risk assessments
  -

Drills to be conducted annually for the below:

- Fire drill
- Bomb threat
- Fall from Heights Rescue procedures

The emergency plan is to ensure the inclusion of local service providers where possible. Such arrangements should be made with these persons prior to the commencement of the project.
Local emergency telephone numbers must be displayed and made part of the emergency procedure.

Due to the Covid-19 Pandemic the emergency plan must include the current Regulations of the National Disaster Management Act.

- First aid
  Extra gloves, and disinfectants are to be available, first aiders are to be issued with at least FFPT2 masks should they be required to respond

- Evacuation plans
  Evacuation plans should consider social distancing.

- Isolation of potentially infected workers

The emergency plan is to consider how anyone who arrives on site and displays any of the symptoms, or has a raised temperature

The general principals of emergency management are to be applied as it applies to the hierarchy of control and management.

5.2.1 First Aiders and First Aid Equipment

At least 1 first aider will be trained to Level 3. First aiders shall be available and accessible on site at all times and be able to work as a team when responding to any emergency on the project.

Contractors are expected to ensure compliance and provide/manage their own first aiders and equipment. The number of First aiders will be determined by the complexity and exposed risks of the project, not numbers of workers

Appropriately stocked first aid kits, at least to the requirements of the Annexure to the GAR, are to be available at all times to assure continual availability and access on site.

5.2.2 Fires and Emergency Management

Attention to emergency planning and procedures is very important. The full emergency plan must form part of the supporting documentation with the H&S Plan. The CHS Agents approval of all emergency plans and procedures is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan may be adapted should new information or risks are identified.

First aiders shall be available in each working team and be able to work as a team when responding to any emergency on the project.

The procedure shall detail the response plan in relation to the works, and include at least (but are not limited to) the following key elements:
Appointment of a competent emergency response co-ordinator and wardens;

- Lists of first aiders, and
- Requirement in terms of identified risks:
  - Fire;
  - Explosions;
  - Falls from heights, and
  - Motor vehicle accidents.

The emergency plan is to ensure the inclusion of local service providers where possible. Such arrangements should be made with these persons prior to the commencement of the project.
The emergency plan is to include the risk of fire on site and related to any specific activities where gas, welding, cutting etc. occur.

Fire extinguishers will be appropriate for the risk and in sufficient numbers to deal with the type of fires that could occur. All mobile plant is to have appropriate, accessible fire extinguishers. Hot work permits are required for any such activities.

5.2.3 Incident Management and Compensation Claims

All incidents and accidents are to be investigated. All serious incidents involving any form of disabling injury or fatality are to be reported to the Designer /Client /CHS Agent immediately. This shall be confirmed in writing following the incident. Full details are to be included in each site meeting or when the Client visits site. A summary of incidents is to be included in the monthly report.

Any person who contracts the Covid-19 Virus may need to be reported to the Compensation Commissioner as an occupational disease where their work is to monitor and in contact with others. Such details are provided in the Compensation for Injuries and Diseases Act (COIDA).

Failure to comply with emergency provisions will be considered a serious offence, and the operation or project may be stopped if deemed inadequate for the work at the time of assessment or site inspection.

5.3 Personal Protective Equipment (PPE) and Clothing

The PC is to provide a procedure as an addendum to indicate how PPE is managed within the Company.
The wearing of the identified SANS approved PPE. The PC shall ensure that all workers (Including Contractors) are issued with and shall wear:

- Hard hats;
- Protective footwear;
- Dust Masks
- Hand Gloves
  It is preferable that surgical gloves are not worn unless indicated and workers trained in the proper use thereof. Gloves must only be used when the activity demand the wearing of specific type of hand gloves. This will be directed by the PC risk assessment.
- Site office personnel need to be made aware of the risks in the office environment, this include to handling of documents and plans. These employees could be issued with the appropriate hand gloves or sufficient hand wash / sanitising facilities must be available in the site office.
- Overalls that ensure worker visibility.
  All employees must be issued with 3 overalls (1 overall wearing; 1 overall in the wash and one as the backup). This will ensure that the employee will be able to wear clean hygienic overalls. This must form part of the COVID-19 training for all employees
- Eye protection (if required)
- Hearing protection;
- Reflective jackets (no bibs)
- Harnesses (working on heights)
- Respiratory protection (minimum of FF2), and
- Any other necessary PPE identified from SDSs and/or risk assessments.
- Masks
  Compulsory for all employees; personnel and professional team members, reducing the potential of inhaled COVID-19 droplets. For general administration purposes, for essential staff on site only, cloth masks may be worn. N95 masks are only to be worn by first aiders or high-risk workers, due to the national shortage thereof.

  All N95 and FFPT2 masks to be disposed with or after 1 day's use. Induction to include training on the correct use of face masks.

  Cloth face masks to be used and worn at all times. It is advised that each worker is supplied with at least 3 cloth face masks. This would assist ensuring that the masks are hygienic (1 on the face; 1 in the wash and 1 as a backup).

  The PC must ensure that sufficient stock is at all-time available on site. This will also have depended on the type of mask being issued.

  All disposable masks are biological waste and must be properly disposed of. This must be disposed in container (locked) or in bags to be either removed as medical biological waste by registered service provider.

Adequate quantities of PPE shall be available. This shall include necessary PPE for visitors. The procedures for managing PPE are to be in a formal procedure submitted with the H&S plan for approval.

Any person (including Client, Designers etc.) found on site without the necessary PPE will be removed from site until the PPE is supplied and worn.

Failure to comply will result in penalties being applied.

5.4 Occupational Health and Safety Signage

On-site H&S signage is required. Signage shall be posted up at fixed or temporary working areas, or other potential risk areas/operations. These signs shall be in accordance with the requirements of the General Safety Regulations or SANS requirements as amended. Signage is to be noted on the site drawings indicating where fixed/temporary signage is required.

It should be noted that the Institute will be fully operational during construction activities and the contractor to ensure sufficient separation.

Temporary signage is to include (but not be limited to) the following:

- Report to site office/ 'Warning: Construction Site – Keep out' or similar;
- Site office
- hard hat area or other PPE requirements noted;
- First aid box positions (including vehicles); and
- Fire extinguishers.
- Assembly Area
- Covid-19 information posters

Signs shall be posted at areas of work on site indicating that a construction site is being entered and that persons should take note of H&S requirements.
Note should be taken that "omnibus" signs indicating that the entire site requires PPE should not be used. Any areas where PPE is mandatory must be separately signed.

The Principal Contractor must ensure that members of the public will not be able to gain access to the construction area. It should be noted that the Institution will be fully operational, and the construction area should be properly and securely barricaded at all times.
Failure to comply will result in penalties being applied.

5.5 Induction of Employees and Visitors, General H&S Training

A simple, formal induction programme is to be submitted as an addendum for approval with the H&S plan. Inductions must be carried out for all workers and visitors (including Client, Designers) to the site.

Pre-task training is required to ensure workers are familiar with the risks and H&S measures of the work or tasks to be done. Such training is to be done at least daily. Records of inductions and pre-task training are to be kept in the H&S file.

- Induction training to educate to ensure all users are hand washing correctly
- Induction to include training on the correct use of face masks.

Any person found on site without proof of induction in the H&S File will be removed from site until the proof is supplied and, and a penalty issued per non-compliance.

5.6 Management of Plant and Equipment

Close control of plant and equipment is required, including that of Contractors. It should be noted that control measures should be implemented especially between the two site areas and should at all times be separated from the Institute employees' persons and vehicles.

Daily monitoring of all plant and equipment is required prior to commencing work. Full lists of hired and own plant are to be available at the CHS Agent's/Client audit. All daily inspection records are to be kept in the H&S file. Plant Hire and Haulage Contractors are to comply with the requirements where plant and equipment is brought onto site. Registers are not to be more than 1 week behind.

Only competent, fit plant operators are to be used. Medical certificates of fitness are required for all operators.
Any plant or slings used to lift plant or material require annual load testing by an AIA, and all certificates must have the testers LMI/E number. Operators are to be adequately trained and certified to operate mobile cranes or crane trucks. Certificates and registers are to be placed in the H&S file.
Movement of plant in closures and in confined working areas is to be closely monitored and managed by the supervisors. The blind spots of plant are to be taken into account and workers and Contractors protected accordingly

Failure to do so will be considered a serious offence.

5.7 Excavations

A procedure for managing excavations is to be provided as an addendum to the H&S plan describing how excavations are to be managed.

Excavation method statements are to be approved by the Designer and associated risk assessments are required. Designs by competent persons are required where ground conditions are deemed to require shoring.

A competent person is to be appointed for managing all excavations. A permit system is to be available and used for all excavations. All equipment and ground conditions to be checked daily, and prior to work commencing.

Excavations should preferably not be open beyond what can be closed daily. Where excavations need to remain open, all excavations are to be properly protected. Adequate stakes with 1m high demarcation and berms/spoil are required to be a safe distance from the edge of the angle of repose.

Candy tape may not be used to demarcate excavations. Cognisance is required of the surrounding area and increased levels of protection are required where work is in communities, near schools and clinics.

Work will be stopped, and penalties applied to any work in excavations that is not compliant.

5.8 Working at heights

A fall protection Rescue plan is to be available and supplied as an addendum to the H&S plan. The fall protection plan must be appropriate for the project. Method statements, appropriate risk assessments, safe work procedures and training are to be available prior to work commencing.

Construction drawings shall be required for all temporary structures as they relate to the project. The drawings shall be accompanied by full calculations, design loads and any relevant test results as required by the SANS code and ensure adequate allowance for the development of appropriate documentation and training. All drawings are to be checked and signed by a competent structural engineer (registered with ECSA).

The focus for working at height shall include fall restraint systems where possible except during assembling or dismantling top components or where it is not deemed safe. The relevant SANS codes are to be applied as they apply to the works and the project, such as:

- SANS 10085
- SANS 10333 (parts 1-3)

Should part of the works be contracted out, competent Contractors are to be appointed and submit documentation according to the project requirements. The PC is to note if such work is to be contracted to specialists in the H&S Plan. The plan is to be developed and work managed by a competent person for the duration of the project. The following aspects must be included:

- The public or users of buildings are to be protected at all times by way of hoarding, barricading or fencing
- Notices to be posted
- Restrictions or stoppage when weather conditions are deemed hazardous
- Permit system for working at heights
- Prevention of falling tools or equipment
- Link to emergency plan regarding rescue

All workers are to be in possession of valid certificates of fitness that extend for the duration of the works. Note the requirements in the section relating to medical surveillance

Registers and all relevant documentation are to be placed in the H&S file.

Work will be stopped, and penalties applied to any work at heights that is not compliant.

5.9 Cranes and lifting equipment

Should any form of lifting device or crane (fixed or mobile) be used during the project for deliveries, moving of supplies or equipment, the appropriate documentation must be made available. Method statements, risk assessments, safe work procedures and training are to be available prior to work commencing. A procedure for managing loads and lifting must be made available as an addendum to the H&S Plan.

5.10 Temporary Works (Scaffolding, support work, formwork)

Temporary works must be properly designed and signed off by a competent person. In these instances a competent person is defined as a Professional Engineer or Professional Technologist (registered with ECSA) who has sufficient experience in the design of the type of temporary work in question to be able to assess the design. The appropriate competent persons are to be appointed to manage and monitor such works to the satisfaction of the Engineer and CHS Agent. Records and registers are to be properly completed and kept in the H&S file. If temporary works are to be erected by a Contractor, this must be notified to the Designer/CHS Agent. All necessary calculations and drawings of temporary works must be kept on site and available to the PA and CHSA

Failure to do so will be considered a serious offence.

5.11 Demolition

Care is to be taken during demolition of walls; a stability survey should be carried out. All rubble to be disposed on a regular basis and at a controlled refuse site.

Demolition plan to be submitted by the Principal Contractor for approval before any demolition commences.

5.12 Mechanical installations

All mechanical installations are to be carried out in conformity with the manufacturer's instructions. Method statements and risk analyses must be compiled for each type of installation. A competent person must be designated to supervise the work**.**

5.13 Auditing

Frequency of external auditing by the CHS Agent or Client will be as agreed with the Client and Designer but will at least conform to the requirements of the Construction Regulations. The site will be inspected, and the documentation audited relative to the activities and H&S plan. The CHS Officer of the PC must accompany the Client, or the CHS Agent, on all audits and inspections. Not all audits will be, or need be announced.

The PC will ensure that all their Contractors are audited at a frequency determined by the CHS Agent. Audit frequency may be increased if Contractors are not performing adequately. Audit results will be acted upon and non-conformances and penalties issued where deemed appropriate. The Client, Designer or CHS Agent may act or require further outcomes if non-compliances are noted or unsafe acts are noted on site.

Internal audits are to include site conditions as well as ensuring H&S files are appropriate, and compliant. Comprehensive audit reports are to be made available, the format of the audit reports are to be acceptable by the CHS Agent.

The PC will be audited using a template as supplied in the tender document. The audit template will be adjusted from time to time relative to the activities on site. A similar process is to be used by the PC when auditing their Contractors on site. Compliance with legislative requirements and the systems provided by the PC to manage the H&S on site will be measured. Full compliance is required. Time limits for corrective actions will be set and must be adhered to.

Failure to address findings or non-conformances will be considered a serious offence.

5.14 Communication on Site

All H&S communication during the project between the CHS Agent and the PC will be done through the Architect/Clerk of Works/Client and be in writing, including the issue and responses to non-conformances and H&S audit results.

Failure to address issues timeously will be considered a serious offence.

5.15 Care of Workers on Site: Access/Egress of Site / Welfare Facilities

Welfare Facilities

Adequate toilets, clean, safe drinking water and decent shelter must be afforded workers at all times. Toilets will be within reasonable distance of workers, or placed with each working team in safe, with reasonable privacy. Arrangements made where existing facilities are shared with existing users must be made in writing and placed in the H&S file. No substances containing Formaldehyde may be used in Chemical Toilets.

Ablution facilities are an essential facility that must be available for workers across a site. Facilities are a high-risk area and increased cleaning regimes are required to be introduced. A policy on how this will be done is required, that will cover both portable and permanent facilities. The following are considerations, that include, *inter alia*:

- Portable toilets to be provided at a 1:30 ratio but be sanitized daily as per Occupational Health and Safety Measures in Workplaces or more frequently
- Cleaners to continually clean and have a formal cleaning regime
- Hand washing facilities (soap and water, paper towel) to be available where possible, and if not, to provide hand sanitizer

- Induction training to educate to ensure all users are hand washing correctly
- Flush toilets preferably 1:30 unless increased cleaning regime present;
- Restrict the number of people using toilet facilities at any one time e.g. use a welfare attendant;
- Wash hands before and after using the facilities;
- Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush;
- Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently;
- Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal that need to be managed as hazardous waste;
- Introduce staggered start and finish times to reduce congestion and contact at all times;
- Consider increasing the number or size of facilities available on site if possible

Access/Egress

The PC is to ensure there is suitable and adequate provision to minimize the risk of persons who may be infected with Covid-19 entering the site, the spread of the virus between persons who work on or visit the site and the risk of potentially contaminated persons leaving the site and accessing public spaces or going home to their families. To achieve this, the contractor is required to implement, *inter alia* the following measures:

- Persons accessing the site in groups to maintain social distancing of at least 2 meters while waiting to access the site;
- Persons waiting to access the site to be segregated from the public where required by the provision of dedicated, prominently identified public pedestrian walkways situated in such a way that social distancing is maintained between site personnel and the public.
- Screening of each person who enters the site with a no-touch infrared thermometer.
- Means of (fully) sanitizing each person and their belongings, who access and leave the site.
- Dedicated facilities for safekeeping of personal for each person. Such facilities are to allow for total segregation of belongings and must be easy to sanitize. Provision of such facilities for safekeeping to be accompanied with a procedure for the use and sanitizing of the storage facility to reduce the risk of cross-contamination.
- Toolbox talks to be conducted outdoors when possible, in order for persons to maintain social distancing. Where inclement weather does not allow for this, toolbox talks to be conducted with smaller groupings of workers in a sheltered area large enough to maintain social distancing, and
- Eating areas to be set up in such a way that the maximum number of persons who will use the area at any one time are able to maintain the required social distancing of 2 meters. Should this not be practicable, mealtimes are to be staggered on a rotational basis to avoid contact between persons.

Failure to ensure compliance will be considered a serious offence.

5.16 Discipline, Alcohol and Substance Abuse

All employees (management included) are to follow instructions given in the interest of H&S. Disciplinary action is to be imposed on those who do not follow such instructions or company rules or policies.

No person is allowed to work or access site if under the influence of alcohol or other substances that could impact on their own or others safety. The PC is to have a drug and alcohol policy available to manage such instances.

These requirements are applicable to any employee of any organization providing services on site. Penalties may also be applied by the Client, OHS Agent or Engineer.

5.17 Electrical Equipment

In addition to the requirements of the Electrical Machinery Regulations and the General Machinery Regulations any electrical distribution board used for construction work shall be fitted with suitable earth leakage protection. Leads must be properly and firmly connected. Plugs and sockets shell be in good and safe condition.
All electrical apparatus, other than electrical hand tools, shall have a physical “lock out” system which will prevent any operation other than that authorized by a supervisor. A “lock out” sign shall be displayed when the apparatus is not in use.
Method statements and safe work procedures will be required for all work involving electrical apparatus.

5.18 Covid-19 Management on site

Contractor to provide a plan on how they will manage Covid-19 on site

- **Waste Management for Covid-19 Waste**

  Waste management arrangements to be updated to include provision for the disposal of additional waste generated due to preventative measures implemented. All waste to be managed as hazardous waste.

- **Disposal of any gloves, masks**
  The contractor shall dispose of all used gloves and masks as hazardous waste and provide sealable bags and containers for the safe disposal of this waste.

- **Paper towels**
  The contractor shall provide adequate supplies of paper towels on site. At points where these towels are provided lined waste bins to be placed in order to collect all used towels and then to be disposed of in hazardous waste.

- **Disinfectant solution**
  The contractor to provide adequate supplies of disinfectant on site where the use of water and soap for cleaning is not practical. If disinfectant dispensers are not refilled it should be disposed with other hazardous waste.

- **Wastewate**r
  Wastewater at washing points, toilets, and bathrooms to be contained in a drainage system that prevent surface spills. If wastewater is contained in waste buckets it must be sealed when removed and disinfected after it is cleaned.

- **Change Management**

  Each Principal contractor / contractors to ensure that regular information pertaining to COVID 19 and or any Health and Safety matters is distributed to ensure that required measures / controls is timeously addressed. There are various information platforms available to the Employer and or employee that can assist in keeping them informed:
  - Local Authority / Legislation
  - World Health Organizations
  - Health Care Departments / Health Care Professional’s / Centre’s / Hospitals
  - Public Service Announcements – National News

Each employer is responsible and required to keep his or her employees informed by means but not limited by conducting the following;

- Awareness campaigns -i.e. posters within work places
- Daily site task Inspections (DSTIs)
- Toolbox talks / Daily briefings
- Meetings
- Company policies / procedures / Employee Wellbeing interaction
- Company newsletters
- Telecommunications – Cell phones Apps / e-mail

- **Succession Planning**

Key personnel on site should also have competent alternative employees that could perform these functions when needed. Where possible administrative staff should be working from home to limit any opportunistic exposure.

It is particularly important to understand that the availability of certain essential products and material could not always be available and them for proper planning must be in place to ensure that the activities on site are not interrupted.

Proactive planning must be in place to ensure that the following are ordered and available:

- PPE (cloth face masks, face shields, overalls)
- Hand sanitizers with at least 70% alcohol content
- Disinfectants and cleaning materials

- **Consequences**

When non-compliance activities are noted that activity should be stopped. Should the remedial actions not take place the site will be shut down till the corrective actions have been implemented.

Employees that do not work according to the SSHSS and SSHSP must be disciplined according to the company's disciplinary codes and practices.

Supervisory employees on site must ensure compliance, and when non conformances are noted disciplinary actions should also be followed.
PCs should note that they could be fined and even according to the Disaster Management Act, arrested.

5.19 Blasting

Use of competent blasting company. Method Statements, PPE, Risk Assessments, SANS Codes, OHS Act and Safe Work Procedures.

Approval of blasting plan from the OHSO at least 48 hours before planned blast.

The Contractor shall be held responsible for any injury or damage (or both) caused by blasting in
connection with the works. The Contractor shall, therefore, utilize explosives in such a manner that the risk of damage to persons, property or the works is within acceptable limits and all legal requirements pertaining to their use are complied with.

5 HEALTH AND SAFETY FILE

The documentation submitted and approved following the awarding of the contract will be used to form the H&S file. The H&S file is required to be laid out in a logical manner, and documentation filed within the file is to be easily accessible.
The following completed information shall be included (but not be limited to) as part of the index:

- The PSHSS;
- The H&S Plan and the approval by Client;
- Appointment by Client;
- Mandatory agreement with Client;
- Permit Application for construction work
- A record of all working drawings, calculations and design where applicable.
- Detailed list of Contractors with contact details, appointments, Mandatories etc., H&S specifications issued;
- Record of Competencies (CVs) and appointments;
- Training Records;
- Permits;
- Method statements;
- Risk assessments;
- Safe work procedures;
- Emergency and injury management;
- Safety data sheets
- Medical surveillance records;
- Covid-19 screening records
- Registers; and
- Records of audits, minutes etc.
- Plant lists
- Temporary electrical installations
- Employee records (who is on site)

6 NON-CONFORMANCES

Should, at any time, the works, or part of the works, be stopped due to unsafe acts or non-compliance with the Clients or PCs H&S Plan; neither the PC nor any other Contractor shall have a claim for extension of time or any other compensation.
The following constitute examples of the types of non-conformances that will attract penalties:

Minor: **Penalty: R50/count**	**Medium:** **Penalty: R500/count and a non-conformance**	**Severe** **Penalty: R5000/count, a non-conformance and/or activity stoppage**
Non-use of PPE supplied	Toilets not supplied or regularly serviced; lack of drinking water	Contractors working without Health and Safety Plan approval
Non-completion of registers for plant and equipment on site	Contractors not audited	Workers transported in contravention of the OHS plan or legal requirements
Lack of H&S signage at work areas	Working without training or the appropriate, approved H&S method statements	Invalid Letters of Good Standing
Tools and equipment identified in poor condition during inspections	Legal non-conformances identified during the previous audit and not addressed within the agreed time frame	Non-compliance with traffic accommodation requirements: layout or physical conditions
	No monthly OHS report at site meeting to report on	Any serious breach of legal requirements
	No certificates of fitness for workers as required	
	Working without approved method statements	

7.1 Failure to Comply with Provisions

Failure or refusal on the part of the PC or their Contractors to take the necessary steps to ensure the safety of workers and the general public in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient cause for the engineer to apply penalties as follows:

(i) A penalty as shown in the Table above shall be deducted for each and every occurrence of non-compliance with any of the requirements of the PSHSS.

(ii) In addition, a time-related penalty of R500, 00 per hour over and above the fixed penalty may be deducted for non-compliance to rectify any non-conformance within the allowable time after a site instruction to this effect has been given by the Designer. The site instruction shall state the agreed time, which shall be the time in hours for reinstatement of the defects. Should the Contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.

8 MEASUREMENT AND PAYMENT

The payment items for Occupational Health & Safety are contained in the Bill of Quantities. The same rules are applicable in respect of the pricing of these items as for every other payment item. Attention is drawn to the Pricing Instructions in this document.

Item and Unit

C.01 Preparation of Contractor's Project Specific Health and Safety Plan. (Lump Sum (L.S))

The rate for this item must cover all expenses incurred in preparing the Contractor's project specific Health and Safety Plan as required by the Client's project specific Health and Safety Specification in this document

C.02 Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations. (Lump Sum (L.S))

The full amount will be paid in one instalment only when the Client's Agent has verified and approved the following

(a) The Principal Contractor has notified the Provincial Director of the Department of Labour in writing of the project, Annexure A to the Regulations.
(b) The Principal Contractor has made the required initial Appointments of Employees and Contractors.
(c) The Client has approved the Principal Contractor's project Health and Safety Plan.
(d) The Principal Contractor has set up his Health and Safety File.

C.03 Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations. (Month (Mth))

The amount shall represent full compensation for that part of the Principal Contractor's general obligations in terms of the Occupational Health and Safety Act and Regulations which are mainly a function of time. Payment will be made when the Client's Agent has verified the Principle Contractor's compliance as part of the audit. This will include the updating and administration of the Health and Safety file.

C.04 Provision of Personal Protective Equipment (PPE) as listed in the Bill of Quantities. (Number (No))

The rates for these items shall include for the procurement, delivery, storage, distribution and all other actions required for the supply of PPE to the employees of the Principle Contractor, full or part time, requiring them. Sub-Contractors are responsible for their own costs in this regard. Any items of PPE not included on the list will be paid for only after the Engineer has agreed to their acquisition.

Items listed will include, among others which may be noted, are: hard hats, reflective vests, reflective bibs, high visibility overalls, protective foot wear, fall arrestor harness and tethers, gloves, ear muffs, earplugs and dust masks of appropriate type. Normal items such as standard overalls, waterproof clothing, gum boots and standard workshop safety equipment such as welding masks and goggles will not be paid for.

Payment will be based on the issues register for PPE as kept by the Construction Health and Safety Officer, backed up by paid invoices if requested.

C.05 Provision of part-time or Full Time Construction Health and Safety Officer, Construction Manager, Assistant Manager, Construction Supervisor

The Tender sum shall include for the cost of a Construction Health and Safety Officer, Construction Manager, Construction Supervisor on a fulltime basis, the amount tendered will be prorated according to the amount of time spent on the project.

C.06 Costs of Medical Surveillance (Unit (No))

This item shall cover all costs in involved in the obtaining of baseline medical examinations of temporary labour, including operators for mobile plant as contemplated in CR 21(d) (ii); for temporary workers and workers exposed to noises at or above the limits given in the Noise-induced Hearing Loss regulations, as stipulated.

Workers in the permanent employ of the Contractor will only be paid for if their certificates require updating.
C.06 a) Initial (baseline) medical examinations, including audiometric and lung function testing.

C.07 Induction Training (Unit (No)

This item shall cover all costs incurred for the health and safety inductions as set out on Regulation 7 of the Construction regulations and the proof of induction required. Payment will be made on the figures contained in the induction section of the Health and Safety File.

C.08 Provision of First Aid Boxes. (Unit (No))

The rate for this item shall cover all costs incurred in the provision and maintaining of first aid boxes as outlined in Paragraph 7 above.

C.09) Establishment of noise levels (Unit (No))

a) This item shall cover all costs involved in the establishment of noise zones, including any workshops, in terms of Regulation 9 of the Noise-induced Hearing Loss Regulations. Where a zone has previously been established for a particular item of plant within the last two years, the test need not be repeated but must be kept valid for the duration of the Contract.

C.10 Submission of the Health and Safety File. (Lump Sum)

Expenditure under this item shall be made in accordance with the general conditions of contract.

This amount will be paid only once the Principal Contractor has met all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged on this specification to the Client's satisfaction. This must be done prior to the issue of a Certificate of Completion

ANNEXURE A
CLOSE OUT REQUIREMENTS

The H&S files for the Principal Contractors and all Contractors require closure and handover to the Client at the completion of the project. The following list is an example of what should be included, but is not exhaustive. The OHS Agent or the Client may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are met. Documentation would include all records from the start of the project. Daily or monthly plant inspection records are not required unless they are related to an accident. All records to be in electronic format and submitted to the OHS agent for approval in adequately formatted lists and folders. Layout should be logical and in the same order as in the site files.

Health and Safety close out file requirements include:

a) Client H&S Specification
b) Principal Contractor's OHS Plan(s)
c) Principal Contractors Policies
d) Organograms
e) Legal Appointments
f) List of all employees employed on a permanent or contractual basis over the duration of the contract
g) Permit Application with Department of Labour
h) Letters of Good Standing for the Project
i) Full files for all Contractors as well as their close out reports
    - List of Contractors
    - All employees employed on a permanent or contractual basis over the duration of the contract
    - Letters of Approval of Contractors
    - Mandatary Agreements
    - Letters of Good Standing
    - Appointments
j) Incident Records
k) Non- Conformance records
l) Agent's Audits
m) Method Statements
n) Risk assessments
o) Safe work procedures
p) Medical surveillance certificates of fitness. Medical records are to be kept according to the OH&S Act as amended
q) All drawings for temporary structures (suspended beams/scaffolds etc.)
r) All operating manuals for any systems that require on-going maintenance
s) Copies of test results, policies and procedures for environmental monitoring (silica, noise, dusts etc.)

Defect and Liability Period
The H&S files are to be kept 'live' for the defect and liability period by the Principal Contractor, including those of their Contractors. Any work required during the defect and liability period will require an assessment of the H&S file by the OCHS Agent prior to any work commencing.
A copy drawing records for the as-builts are to be placed on file by the Designers once complete.

ANNEXURE B
NON-CONFORMANCES

HEALTH AND SAFETY SITE INSPECTION **NON-CONFORMANCE NO**		
AGENT:	**PROJECT:**	
Consultant:	**Date and time:**	
Client	**Area:**	
Contractor:		
ASPECTS NOTED:	**COMMENTS:**	**COMPLETION REQUIRED BY (DATE):**
	•	
	•	
	•	
	•	
	•	
PHOTOGRAPHIC EVIDENCE (if available):		
OTHER:		
The following penalties are to be applied:		
Signature of Designer		
Signature of CHS Officer/Site Agent		
Signature: of CHS Agent		

ANNEXURE C:

CONTRACTORS MONTHLY HEALTH AND SAFETY REPORT

(To be submitted by the end of the first week of each month and be available with each audit)

CONTRACT NUMBER:		PROJECT NAME:	CONTRACT DETAILS:
1	GENERAL ACTIVITIES FOR THE MONTH (detail each area of work)		
2	NUMBER OF WORKERS (permanent and local, contractors)		
3	TRAINING DONE (supplier, no of people, type)		
4	INCIDENTS / ACCIDENT (list number and details attach reports)		
6	NON-CONFORMANCES (closed out or active)		
7	CONTRACTORS (list, approval status)		
8	AUDITS COMPLETED (internal and external)		
9	CRITICAL ISSUES		
10	GENERAL		

CHS Officer **Signature** **Date:**

Site Agent _____ **Signature** _____ **Date:** ___

BILL OF QUANTITIES

Item	Description	Unit	Quantity	Rate	Total
	Preparation of the Contractor's site-specific Health and Safety Plan including Covid-19 Management	lump sum			
	Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act / Construction Regulations / Disaster Management Act, of 2002	lump sum			
	Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	month			
	Provision of Personal Protective Equipment (PPE)				
(a)	Reflective vests	Item			
(b)	Hard hats	Item			
(c)	Protective foot wear	Item			
(d)	Earplugs	Item			
(e)	Dust masks	Item			
(f)	Gloves	Item			
(h)	High visibility overalls to SARTSM Chapter 13 Level 3	Item			
(i)	Ear Defenders SABS approved	Item			
(j)	Overalls	Item			
(k)	3 layer material Face Masks	Sum			
(l)	Face Shield	Sum			
(m)	Latex gloves	Sum			
(n)	Induction Training for Covid 19	Sum			
(o)	Safety Goggles for Screening person	Sum			
	Provision of a full-time Construction Health and Safety Officer registered with SACPCMP	Monthly			
	Covid-19 Compliance Officer	Monthly			
	Cost of medical certificates and medical surveillance				
(a)	Initial (baseline) medical examinations	prime cost (PC) sum			
(b)					
	Periodic and exit examinations	prime cost (PC) sum			
	Contractor's charges to allow for handling costs and profit in respect of sub items C.06 (a) and (b)	%			

	Screenings for Employees with COVID-19 Symptoms	Sum			
	Induction training including Covid-19	Item			
	Provision of First Aid Boxes to GSR requirements	Item			
	Noise monitoring				
(a)	Establishment of noise zones (plant)	Item			
(b)					
	Audiograms (personnel)	Item			
	Submission of a Health and Safety File	lump sum			
	Infra - red scanner - NON CONTACT	Sum			
	Covid-19 Awareness and warning signage	Sum			
	Covid-19 Waste Disposal of contaminated material	Sum			
	Hand sanitizers 70% Alcohol	Sum			
	Sanitizing spraying chemical	Sum			
	Cleaning detergents for COVID-19	Sum			
	Ablutions and latrine facilities made COVID-19 safe	Sum			
	Transport for Construction Site safety for COVID-19	Sum			
	Isolation area for possibly Covid-19 infected persons	Sum			

Tsolo Agriculture and Rural Development Institute

The base line risk assessment is to highlight hazards emanating from project risks identified. This list of risks is therefore not the replacement of the contractor's risk assessment but rather to point the contractor towards some risks he might not be aware of during tendering stage and while conducting his formal risk assessment.

low	med	high
1	4	12
2	6	18
3	8	27

Risk Rating multiplier: Low = 1; Medium = 2; High = 3

Note, this HIRA is a guide only and does not cover all risks. It must be read in conjunction with the Site Specific OHS Specification in the Contract document. The Contractor must supply a full risk assessment for all activities on site					**Baseline risk**					**Residual risk**				
REF where appropriate	Operation	Hazard	Design Risks identified as present	Describe the obvious control measures to be part of design	Likely consequences of an incident	Frequency of Exposure	Probability of harm	Risk rating and risk category	Extra control measures necessary to reduce risk / Redesign by Client and / or Designer	Likely consequences of an accident	Frequency of Exposure	Probability of harm	Risk rating and risk category	Accountability
WORKING AT HEIGHTS														
CR 10	Working at Heights	Scaffolding not properly erected	Scaffold collapse	calculate load capacity of scaffold. Proper design of scaffold	3	3	3	27	Specification must ensure design is done by competent person. Method statements	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
		Scaffolding not properly erected	Fall from height	Fall protection Plan by registered fall planner	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection. Method statements	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
		Scaffold not properly erected	Falling objects	Use of toe boards, proper decking, catch nets	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection. Method statements	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
GSR 13A		Use of ladders	Persons / objects falling	Ladders conform to General Safety regulation 13a	2	3	3	18	Worker training Experienced supervision by site staff and P A. Competent Inspection. Method statements	2	2	2	8	Contractor, Scaffold Erector, Scaffold inspector

CONSTRUCTION PLANT AND EQUIPMENT														
CR 23	Use of Construction Plant and Equipment	Struck by vehicle	Injury to persons/Employees / personnel / Institute Employees	Vehicle fitted with acoustic warning devices, hooter and reverse warning	3	3	3	27	Competent supervision and adequate pre-task training will be required. Competent fit operators	3	2	2	12	Contractor,Plant manager
		Vehicle overturns	Injury to persons/Employees/Personnel. Damage to vehicles / Damage to Institute parked vehicles	proper operation of vehicle	3	3	3	27	Competent supervision and adequate pre-task training will be required. Competent fit operators	3	2	2	12	Contractor,Plant manager
		Untrained operator	Injury to persons. Damage to vehicle	Only employ competent operators	3	3	3	27	Competent supervision and adequate pre-task training will be required. Competent fit operators	3	2	2	12	Contractor,Plant manager. CHSO
		Unsilenced plant	Noise induced hearing loss	Fit or repair silencer	**2**	**3**	**3**	18	Proper supervision, operator training, Establishment of noise zones by AIA. Correct PPE including ear defenders/plugs	**2**	**2**	**1**	4	Contractor,Plant manager. CHSO
EXPOSURE TO NOISE														
N-IH l Regs	Exposure to Noise	Over 85 Db for long period:When activities are in process	Hearing Loss	Avoid exposure to noise where possible	2	3	3	18	Specification to require establishment of noise zones by AIA. Communication with the Institute to ensure minimal noise at all times	2	2	2	8	Contractor,Plant manager. CHSO
EXPOSURE TO DUST														
	Exposure to Dust	If severe lack of clear vision; Breathing problems.When activities are in process	Loss of Lung Function	Dust prevention	2	3	3	18	Specification to include dust palliative requirements.Communication with the Institute to ensure minimal dust at all times	2	2	2	8	Contractor,Plant manager. CHSO

ENVIRONMENTAL														
Environmental and facilities regs	Weather is a factor to be considered, raised temperatures in summer, with high humidity levels. Very cold weather may be encountered with the possiblity of frost. High Wind speeds	Working in wet, extreme hot conditions Temperature range 2 to 40 deg C. Exptreme wind conditions	Possible hypo- or hyper-thermia.low efficiency of workers.	Work stoppage in rain or following rain that would affect the works. Cold weather protective clothing may become necessary. Hot weather may require work stoppage. Adequate supply of drinking water.	3	3	2	18	Use of weather stations to monitor temperature, Work to be assessed should discomfort index reach 100, work may be stopped at 105 if deemed problematic. Adequate water intake. Sheltered areas for rest and eating.	2	3	2	12	Contractor, Construction Manager, CHSO
	Office facilities	working in cramped unventilated or poor lighting conditions. Poor Hygiene	Health issues / Covid-19 Infection	Office set-up to be checked for suitability, Office to be cleaned at regular intervals	**2**	**2**	**2**	8	Avoid the use of containers for offices unless properly modified for use as offices, Ensure office cleaning and sanitizing done regularly	**2**	**1**	**1**	2	Contractor, Construction Manager, CHSO
	General Waste Management	Use of temporary toilets	Health Issues	Use of chemical Toilets, at least one per 20 worker's male and female separated	2	2	3	12	No Formaldehyde in chemicals. Serviced and cleaned at least once weekly by competent service providers.	**1**	**2**	**1**	2	Contractor, Construction Manager, CHSO
		Waste disposal	Health and Environmental issues	All waste properly disposed of two certificated rubbish dump	2	2	3	12	No burning of cement bags or other refuse on site. Site to be kept tidy. Removal of all waste at regular intervals by competent service providers.	**2**	**1**	**1**	2	Contractor, Construction Manager, CHSO

SITE ESTABLISHMENT														
CR 24	Existing Services	Electrical	Contact with electrical cable overhead	erect warning signs, inform workers	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	Contractor, Construction Manager, CHSO
			Contact with underground cable	erect warning signs, inform workers	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	
			Use of equipment under HV cable	erect warning signs, inform workers no work under cable without permission and compliance with ESCOM requirements	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	
		Water	Underground pipes	care in excavation	2	2	2	8	Experienced supervision by site staff and P A. Competent Inspection	2	2	1	4	Contractor. Construction Manager. CHSO
		Telephone	Overhead cables	erect warning signs, inform workers	1	3	2	6	Experienced supervision by site staff and P A. Competent Inspection	1	1	1	1	Contractor, Construction Manager, CHSO
ELECTRICAL TOOLS														
	Use of small electrical tools	Contact with electricity	Electric shock	Certificate of Compliance for electrical supply	3	2	2	12	Ensure all connections secure, no breaks in cable. Proper routing of cables on site	3	2	1	6	Contractor, Construction Manager, CHSO, Electrical Supervisor

ACCESS														
	Public access	Persons in dangerous areas. Personnel gaining access to construction area / Institute Personell and Institute visitors gaining access to construction area	Injury to person's/employees/personnel	Separate general public from construction site.Extra care to be taken to ensure the public and personnel do not gain access to the construction activities. Extra care to be taken when phasing is done to separate the above	3	2	2	12	Spec to require: Access control. Induction for visitors. Security control. Safety Notices. Extra Observation	3	1	1	3	Contractor, Construction Manager, CHSO
	Access control	Personnel, Public and employees may gain access to site	Fall into excavation, injury from plant, tools or at workplace/ construction activities.	Access control to be in place, hoardings erected to separate site from public. Extra hoarding to be in place to ensure the public and personnel are kept out of the construction site.	3	2	2	12	Strict access control, gates locked or manned at all times. Trained security staff on duty. Induction for all visitors. Extra hoarding as well as 24 hour secureity	3	1	1	3	Contractor, Construction Manager, CHSO, Security, Institute Management
CONCRETE WORK														
CR 20	Outsourced supply	delivery by truck	person struck by truck	Reverse warning Driver training	3	2	2	12	Worker training. Experienced supervision	3	1	2	6	Contractor. Batch plant and Concrete Supervisor, CHSO
			person struck by concrete poured into shuttering	proper training and supervision	2	2	2	8	Area cleared of all but essential workers	2	1	2	4	
	Hand mixing	use of small tools	contact with cement	care in opening cement bags	2	2	2	8	Ensure workers fit for work. Proper supervision	2	1	2	4	Contractor. Batch plant and Concrete Supervisor, CHSO
			inhale cement dust	care in opening cement bags	2	2	2	8	Ensure workers fit for work. Proper supervision	2	1	2	4	
			ergonomic risks	Rotate work	2	3	3	18	Ensure workers fit for work. Proper supervision	2	3	1	6	

CR20	Use of concrete vibrator	injury to persons	noise, vibration, contact with vibrating head, contact with wet concrete	Operator training	2	2	3	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	2	2	1	4	Contractor. Concrete Supervisor, CHSO
BRICK WORK														
	Delivery by truck	struck by truck	Injury to persons	Vehicle fitted with acoustic warning devices, hooter and reverse warning	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	Contractor, Building Supervisor, CHSO
	Moving bricks	use of wheel barrow	Injury to person's ergonomic risks	training of workers. Job rotation	2	2	3	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	2	2	1	4	Contractor, Building Supervisor, CHSO
		Use of Brick lift	Injury to persons	training of workers in use of equipment	3	2	2	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	3	2	1	6	Contractor, Building Supervisor, CHSO
	Use of support work	Collapse of support work	Injury to persons	training of workers in use of equipment Method statements	3	2	2	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment proper calculation of loads involved by competent person	3	2	1	6	Contractor, Building Supervisor, CHSO
	Use of access scaffolding and Ladders	working with ladders and low scaffolds	Falls, slips	Fall protection plan. Ladders to GSR13A	3	2	2	12	Training, proper supervision. Ladder inspection	3	1	2	6	Contractor, Building Supervisor,, Scaffolding Inspector CHSO
	Working with glass	glass breaking	Cuts and other injuries	training of workers in use of equipment	3	2	2	12	Experienced supervision by site staff and P A. Competent Inspection	3	2	1	6	Contractor, Building Supervisor,, Scaffolding Inspector CHSO

PLUMBING														
	Plumbing Contractor	Unregistered, incompetent contractor	poor work, cost overruns, no municipal connection No Certificate of Compliance	Ensure appointment of registered, competent contractor	3	2	3	18	Project specific H&S Specification and HIRA in tender Document	3	2	2	12	Contractor, Construction Manager, CHSO
PAINTING														
GSR 13A	Painting	working with ladders and low scaffolds	Falls, slips	Fall protection plan. Ladders to GSR13A	3	2	2	12	Training, proper supervision. Ladder inspection	3	1	2	6	Contractor, Construction Manager, Ladder Inspector, CHSO
		Ingestion of Paint	Gastric irritation, nausea	Training; clean site	2	2	2	8	Tool box talks, proper supervision	1	2	2	4	Contractor, Painting Supevisor, CHSO
		Cleaning Brushes	Use of thinners, benzene, possible carcinogens; highly flammable	Supply SDS Use alternative brush cleaner Keep away from open flames	2	2	2	8	Use of Turpentine, Proper supervision Training	1	2	2	4	Contractor, Painting Supevisor, CHSO
ELECTRICAL INSTALLATION (see also Electrical installation regulations)														
	Electrical Contractor	Unregistered, incompetent contractor	poor work, cost overruns, no municipal connection	Ensure appointment of registered, competent contractor	3	2	3	18	Project specific H&S Specification and HIRA in tender Document	1	2	2	4	Contractor, Construction Manager, CHSO, Electrical Supervisor
CAPRENTRY														
	Carpentry	Use of Tile Cutter and grinder	Injury to worker / ERGONOMIC RISK	Training of workers / job rotation / training of workers with equipment	2	2	2	8	Ensure Correct PPE, toolbox talks proper supervision	2	1	2	4	Contractor / Supervisor / CHSO
PAVING														
	Paving	Use of wheelbarrows, handtools, cutting equipment / moving vehicles	Injury to persons / ergonomic risk	Training of workers / job rotation / training of workers with equipment	2	2	2	8	Ensure Correct PPE, toolbox talks proper supervision	2	1	1	4	Contractor / Supervisor / CHSO
HAZARDOUS CHEMICALS (see also Hazardous Chemical Regulations)														
HCS Regulations	Use/supply of hazardous Chemicals	improper use/storage of hazardous Chemicals	Fire, explosion poisoning of persons	Supply appropriate materials safety data information	3	2	3	18	component person appointed to check stores. Proper storage. Provision of fire extinguishers. Emergency plan.	3	1	2	6	Contractor, Construction Manager, CHSO HCS supervisor, SMME Contractor(if employed)
	Plastering	Cement Mortar	Used across the project for a range of tasks,	Avoid contact with cement. Supply SDS	3	3	2	18	Dust control, PPE (eye and respiratory) Use of distributor when stabilizing road. Rotation of workers	2	3	1	6	
	Tiling	Tile grouts and Adhesives	contact with materials	Avoid contact with grouts and Adhesives. Supply SDS	2	2	2	8	Proper PPE. Worker training	2	1	2	4	
	Carpentry	Wood glue & Varnish	Health Risk to Workers	Avoid over exposure	2	2	2	8	Ensure proper ventilation	2	1	2	4	

ERGONOMICS														
	Plastering, Tiling, Carpentry	ergonomic risks	working in confined areas, bending,	rotate work	2	2	2	8	proper supervision, competent trained workers	2	1	2	4	
EXCAVATIONS														
CR13	Excavations	Plant & Manual	Injury or death to employees, Public and personnel	Proper training of operator: Medicals, machine in good working order	**3**	**2**	**3**	18	Excavation barricaded/shored as required. Proper supervision	**3**	**2**	**2**	12	Contractor, Construction Manager, CHSO, Excavation Supervisor
BULK EARTH WORKS														
	Bulk Earthworks	Unauthorized entry	Injury/death of employees	Ensure that bulk earthwork area is out of bounds to unauthorized persons. PPE to be worn by all employees	**3**	**3**	**3**	27	Method statements/ Risk Assessments/Safe Work procedures must be adhered to. Control measures must be in place for all	**3**	**2**	**2**	12	Contractor, Construction Manager, CHSO, Earthworks Supervisor
		Unsafe working conditions	Injury/death of employees	All operators & employees to be inducted.	**3**	**2**	**3**	18	Daily checklists and Tool Box Talks must be done	**3**	**2**	**2**	12	
		Unsafe equipment	Property/equipment damage	Operating manual should be adhered to. Operators to be aware at all times	**3**	**2**	**3**	18	Daily checks list/ Method statements/ Risk Assessments/Safe Work Procedures Tool Box Talks	**3**	**2**	**2**	12	
LIFTING EQUIPMENT														
CR22	Lifting Equipment	Uneven ground, loose soft soil, overhead power lines or other obstructions	Machine could tilt or become bogged down and causing a dangerous situation. Resulting in injury/property damage/Death	Correct inspection and evaluation of the working area. Ensure working area is clean and that the machine will be stable	**3**	**3**	**3**	27	Correct inspection and evaluation of the working area Ensure working area is clean and that the machine will be stable.	**3**	**2**	**2**	12	Contractor, Construction Manager, CHSO, Lifting Operator, Lifting Inspector
		Checking out the machine to ensure that all is in good working order	Controls not functioning correctly, oil leaks. Machine failure causing damage and injury to employees	All operators & employees to be inducted.	**3**	**2**	**3**	18	Daily checklists and Tool Box Talks must be done	**3**	**2**	**2**	12	
		Correct positioning of equipment ensuring it is level before carrying out the lift	Machine could tip over in on e particular direction. Property/equipment damage/employee injury	Ensure that the machine is correctly positioned and will not be over extended in any particular direction of operation. Barricade the area to prevent unauthorized entry.	**3**	**2**	**3**	18	Ensure competent operators to position machine correctly to ensure maximum usage are any one lift / Method statements/ Risk Assessments/Safe Work Procedures Tool Box Talks	**3**	**2**	**2**	12	

DEMOLISHING														
CR14	Demolishing	Breakdown structure	Break wall from top to bottom. Injury to all body parts can occur	Ensure to break structure from top to bottom. Employees to be trained.	**3**	**3**	**3**	27	Regular inspection and evaluation of the working area prior to work. Employees to be trained and regular tool box talks to be conducted.	**3**	**2**	**2**	12	Contractor, Construction Manager, CHSO
		Dust	Inhaling of dust causing sinus	All employees to be inducted correct PPE to be worn: Dust Masks.	**3**	**2**	**3**	18	Correct PPE, Daily checklists and Tool Box Talks must be done. Communication with the institute to ensure minimum dust exposure during office hours	**3**	**2**	**2**	12	
		Working Area	Loose bricks laying around, Workers can fall over bricks - Injuries to all body part can occur	Ensure proper housekeeping is maintained at all times. Work area to be kept clear of loose materials	**3**	**2**	**3**	18	Ensure competent operators to position machine correctly to ensure maximum usage are any one lift / Method statements/ Risk Assessments/Safe Work Procedures Tool Box Talks	**3**	**2**	**2**	12	
BLASTING														
	Blasting	Not done by Competent Blasting Company	Injury/death to persons	Competent company to be appointed. Proof to be kept. Correct PPE to be used at all times.	**3**	**2**	**3**	18	Only authorized persons to work in designated area. Sufficient training provided. Risk Assessment and Method statements to be done by a competent person this must be communicated to all workers. Medical surveillance to be done on all workers. Workers to be comprehensively trained proof to be kept in the Health and Safety File. Approval of plan to be done by contractor 48 hours prior to blasting approval from CHSA.	**3**	**2**	**2**	12	Contractor, Construction Manager, CHSO

COVID-19 MANAGEMENT													
National Disaster Management Act	Covid-Management	Demographics of Labour	Vulnerability due to age, underlying auto-immune or chronic diseases, socio-economic status, having to use public transport to get to work	Ensure Covid-19 protocols are followed	3	3	3	27	The medical surveillance policy and method statement to be adhered to. A full questionnaire to be completed prior to return, or on return, and those identified as high risk must be separated and possibly refused entry until deemed negative. Daily temperature on entry to site;Induction, DSTIs and toolbox talks to be done daily on topics relating to covid, personal hygiene and PPE. Strict enforcement for use of PPE Job substitution if possible for those who are affected. Must inlcude catering and cleaning facilities.	3	3	2	18
		Origin of Labour	Transportation of employees/workers across borders and between towns and cities, districts and municipalities	Ensure Covid-19 protocols are followed	3	3	3	27	Selection and provision of transport services compliant with gazetted requirements;Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arange selective methods of transport, ongoing toolbox talks and if possible supply of cloth masks to be worn when travelling. Limitation of border crossing unless specialised contractors	3	3	2	18
		Transportation	Maximum allowed capacity exceeded; No facilities for sanitising vehicles and passengers; No additional protective measures available, e.g. face masks; Unlicenced drivers and operators	Ensure Covid-19 protocols are followed	3	3	3	27	Selection and provision of transport services compliant with gazetted requirements;Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arange selective methods of transport, ongoing toolbox talks and supply of cloth masks to be worn when travelling or moving on and off site. Vehicles maintained at 70% capacity or less; Vehicles sanitised between trips; hand sanitiser provided for passengers.	2	3	2	12

National Disaster Management Act	Covid-Management	Social Distancing	Many construction tasks require more than 1 worker; that will be required to work within the limit of 2m Access/Egress to and off site; Welfare facilities, Meeting areas	Ensure Covid-19 protocols are followed	2	3	3	18	Policy and method statements for the provision of suitable and sufficient PPE;demarcation and spacing of queueing areas; segregation of queueing areas and public outside site perimeters; Meeting/eating areas large enough to maintain 2m distance at maximum occupancy, use of drones, security cameras to limit the need to spend time on site. Only essential workers to spend time on site,Staggered meeting/eating times, use of Zoom, Skype, teams for meetings where necessary. Individual, segregated facilities for safe keeping; Induction training and a programme for information and training.	2	3	2	12	Contractor, Construction Manager, CHSO
		Alcohol and Substance Abuse	Workers , visitors ariving at site under the influence of substances	Ensure Covid-19 protocols are followed	3	3	2	18	Policy and method statement for substance abuse to be reviewed, management of visitors, workers under the influence of alcohol or other substances. No breathalysers unless individual testing units used, and appropriate disposal in hazardous waste.	2	3	2	12	
		Waste Management	Spreading of virus and contact with virus causing infection from handwashing, drying hands, cleaning equipment and other related aspects	Ensure Covid-19 protocols are followed	3	3	2	18	Prepare a policy, method statements, HIRA and and review by PA. Establish and follow protocols for disposal of hazarous waste (containers). Awareness through notices (posters) regarding correct procedures and classification of waste. Competent supervision and adequate awareness training required. Provide adequate supplies of material and consumables, provision of sealable disposal containers/bags through appropriate waste removal company. Estabish and follow protocols for disposal of hazarous waste. Provide adequate supply of paper towels. If contractors used ensure appropriate management.	2	3	1	6	
		Signage	Provision of sealable disposal containers/bags. Unintentional entry to site and work areas compromising workers being contaminated. Acts and behavior that compromises workers	Ensure sufficient and where required	2	3	3	18	A policy and method statement to be prepared, and reviewed by the PA. Installation of posters and signage with the site rules and and protoclos that needs to be maintained at strategic points, Awareness through notices and posters regarding correct protocols to be maintained, Competent supervision and adequate awareness training required. Discipline to be applied to those not complying	2	3	1	6	
		Security Access	Workers, visitors, site administration arriving on site via personal and public transportation	Ensure all accessing the site have sanitized, are screened	3	3	3	27	Policy and method statements to be revised and reviewd by the PA. All persons entering site to sanitize hands, prior to entry to site. Access controller trained on correct procedure to utilize no-contact hand-held thermometer. Back-up access controllers trained on same procedure. All persons entering site tested by trained access controller. Periodic alcohol testing will continue however only when warranted through suspicion.	3	3	2	18	

National Disaster Management Act	Covid-Management	Welfare Facilities	Spreading of virus and contact with virus causing infection	Ensure social distancing, sanitizing	3	3	3	27	Updating of policy, method statements and HIRA, limiting of personnel on site to minimum number required to maintain control and management. Implement and maintain cleaning and disinfecting progamme. Site rules for social distancing to 1.5m. Stagger number of people attending induction and training sessions. Use technology to avoid close proximity between individuals where possible	1	3	2	6	Contractor, Construction Manager, CHSO
		Emergency Planning	Assembly points may have more than 50 people, limited space for social distancing when practice or actual sessions	Ensure all on site have been trainined and are supervised by competent persons	2	3	1	6	Review emergency plan and method statements. DSTIs and toolbox talks. Competent supervision to be trained in the emerngency arrangements. Updating of the emergency plan communicated to all personnel. Emergency Number List updated to include National Institute of Communicable Diseases (NICD) Emergency Hotline – 0800 029 999 and dedicated Isolation Hospital Details	1	3	1	3	
		Protection Personal Equipment	Spread of droplet infection through coughing, sneezing when in close contact	Adequate training must be provided in the correct use and disposable of these masks,Adequate training must be provided in the correct use and disposable of these masks	3	3	3	27	Update the policy, method statements and HIRA for PPE. No employee and or visitor will be allowed on site without a face mask. N95 masks only for medical or high risk workers. Adequate training must be provided in the correct use and disposable of these masks.Cloth masks must washed and ironed daily. Face shields protect mouth,nose and eyes.Daily cleaning of face shields Adequate training must be provided in the correct use and disposable of these masks. Adequate supervision, inclusion induction, polcy, method statements and HIRAs. Covid PPE does not replace conventional PPE	2	3	2	12	
		Consequence Management			2	3	2	12	Revision of policy, method statements and HIRA. PC must ensure that workers are updated daily with all the relevant COVID 19 information thorugh DSTIS/Toolbox talks, notices etc.. PC must ensure that site is updated daily with all the relevant COVID 19 information. Workers should be updated with new information daily. PC must ensure that company disciplinary procedures are inplace. All employees should have knowledge of the company disciplinary procedures. Work stoppage/site closure where non compliance exists.	1	3	2	6	

National Disaster Management Act	Covid-Management	Site Preparation	Contamination of the site over shut down time Spillage of waste/effluent	Ensure all decontamination stations, and other facilities are available at ablution areas, common eating areas, offices, canteens, security	2	1	1	2	Joint inspection where possible by client, PrCHSA & PA, PC, CHSO/M to inspect the site pre site preparation to assess conditions. Revise any policies, method statements for risks and hazards identified for review by the PA. Decontaminate the site, in all areas, ensure the availabliity of hand washing facilities and sanitizers, through the site, and at entrances. Appropriate products as prescribed to decontaminate may be used, and all procedures re plans etc. must be followed. Ensure all decontamination stations, and other facilities are available at ablution areas, common eating areas, offices, canteens, security	1	1	1	1	Contractor, Construction Manager, CHSO
			Unsafe temporary structures, excavations, bees, vermin, squatters, damaged services due to theft	Ensure complete inspections on all structures	3	1	2	6	Full inspections of all temporary structures, security and excavations by the PC (By CM and CHSO). Report to be available with method statements and HIRAs with corrective actions to be provided to the PA/Client. PA to review.Teams to make the site safe prior to work commencing. Limit numbers of teams, check competencies prior to commencing work.Safe removal of those from site	1	1	2	2	
		OCCUPATIONAL HEALTH: Medical certificates of fitness	Workers symptom free but infected with Covid-19, older workers of 60+, workers with underlying auto-immune or chronic diseases	Ensure all workers are screened prior to entering the site and are fit for duty	3	3	3	27	Policy and method statement to be available relating to mediical surveillance. For review by the PA. All workers are to be screened and have a valid certificate of fitness on return to work. A full questionnaire to be completed prior to return, or on return, and those identified as high risk must be separated and possibly refused entry until deemed negative. Methodology to remove staff from site safely to a test facility.	2	3	2	12	

C 3.2.4 HIV/AIDS SPECIFICATION

PW 1544

DEPARTMENT OF PUBLIC WORKS

HIV/AIDS

SPECIFICATION

OCTOBER 2004

SECTION

HIV/AIDS SPECIFICATION

HIV/AIDS REQUIREMENTS

1 SCOPE

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

- Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers;

- Informing Workers of their rights with regard to HIV/AIDS in the workplace;

- Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices.

2 DEFINITIONS AND ABBREVIATIONS

2.1 Definitions

Service Provider: The natural or juristic person recognised and approved by the Department of Public Works as a specialist in conducting HIV/AIDS awareness programmes.

Service Provider Workshop Plan: A plan outlining the content, process and schedule of the training and education workshops, presented by a Service Provider which has been approved by the Representative/Agent.

Worker: Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in all.

2.2 Abbreviations

HIV : Human Immunodeficiency Virus.

AIDS : Acquired Immune Deficiency Syndrome.

STI : Sexually Transmitted Infection.

3 BASIC METHOD REQUIREMENT

3.1 The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers.

The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regard to HIV/AIDS awareness.

The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

- Number of Workers and Sub-contractors on site;
- When new Workers or Sub-contractors will join the construction project;
- Duration of Workers and Sub-contractors on site;
- How the maximum number of Workers can be targeted with workshops;
- How the Contractor prefers workshops to be scheduled, e.g. three hourly sessions per Worker, or one 2.5 hour workshop per Worker;
- Profile of Workers, including educational level, age and gender (if available);
- Preferred time of day or month to conduct workshops;
- A Gantt chart reflecting the construction programme, for scheduling of workshops;
- Suitable venues for workshops.

The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training.

3.2 The Service Provider Workshop Plan shall address, but will not be limited to the following:

3.2.1 The nature of the disease;
3.2.2 How it is transmitted;
3.2.3 Safe sexual behaviour;
3.2.4 Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
3.2.5 Attitudes towards other people with HIV/AIDS;
3.2.6 Rights of the Worker in the workplace;
3.2.7 How the Awareness Champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively and confidentially;
3.2.8 How the Service Provider will support the Awareness Champion;
3.2.9 Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
3.2.10 How the workshops will be presented, including frequency and duration;
3.2.11 How the workshops will fit in with the construction programme;
3.2.12 How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
3.2.13 How the video will be used;
3.2.14 How the Service Provider will elicit maximum participation from the Workers;
3.2.15 A questions and answers slot (interactive session).

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated.

4 HIV/ AIDS AWARENESS EDUCATION AND TRAINING

4.1 Workshops

The Contractor shall ensure that all Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. A video of HIV/AIDS in the construction industry, which can be obtained from all Regional Offices of the Department of Public Works, is to be screened to Workers at workshops. In order to enhance the

learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

4.2 Recommended practice

4.2.1 Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan.

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a following session.

4.2.2 Service Providers

A database of recommended Service Providers is available from all Regional Offices of the Department of Public Works.

4.2.3 HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met.

4.2.3.1 UNIT 1: The nature of HIV/AIDS

After studying and understanding this unit, the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

Assessment Criteria:
1. Define and describe HIV and AIDS;
2. List and describe the progression of HIV/AIDS.

4.2.3.2 UNIT 2: Transmission of the HI virus

After studying and understanding this unit, the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.

Assessment Criteria:
1. Record in what bodily fluids the HI virus can be found;
2. Describe how HIV/AIDS can be transmitted;
3. Demonstrate the ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS.

4.2.3.3 UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit, the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus from entering the bloodstream.

Assessment Criteria:
1. Report on how to minimise the risk of HIV/AIDS infection;
2. Report on precautions that can be taken to prevent HIV/AIDS infection;
3. Explain or demonstrate how to use a male and female condom;
4. List the factors that could jeopardize the safety of condoms provided against HIV/AIDS Transmission.

4.2.3.4 UNIT 4: Voluntary HIV/AIDS counselling and testing

After studying and understanding this unit, the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counseling.

Assessment Criteria:
1. Describe methods of testing for HIV/AIDS infection;
2. Report on why voluntary testing is important;
3. Report on why pre- and post-test counselling is important.

4.2.3.5 UNIT 5: Living with HIV/AIDS

After studying and understanding this unit, the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

Assessment Criteria:
1. List and describe ways to manage HIV/AIDS;
2. Describe nutritional needs of people living with HIV/AIDS;
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS;
4. Explain the need for counselling and support to people living with HIV/AIDS.

4.2.3.6 UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit, the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people.

Assessment Criteria:
1. Discuss anti-retroviral therapy;
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child;
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS;
4. Describe post exposure prophylactics.

4.2.3.7 UNIT 7: The rights and responsibilities of Workers in the workplace with regard to HIV/AIDS

After studying and understanding this unit, the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non-discriminative way.

Assessment Criteria:
1. Discuss the rights of a person living with HIV/AIDS in the workplace;
2. Discuss the responsibilities of a person living with HIV/AIDS in the workplace;
3. Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important.

4.3 Displaying of plastic laminated posters and distribution of information booklets

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets. The contractor should include the costs of posters and information booklets in his/her tender price.

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's.

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover.

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.

The posters on display must always be intact, clear and readable.

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site.

5 PROVIDING WORKERS WITH ACCESS TO CONDOMS

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SABS ISO 4074, available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health.

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary, to ensure that condoms are available within 14 days of site handover.

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

6 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

7 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

7.1 Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads and writes English, who speaks and understands all the local languages spoken by the Workers and who shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive and confidential manner.

7.2 The Awareness Champion shall be responsible for:

7.2.1 Liasing with the Service Provider on organising awareness workshops;
7.2.2 Filling condom dispensers and monitoring condom distribution;
7.2.3 Handing out information booklets;
7.2.4 Placing and maintaining posters.

8 MONITORING

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent.

The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent.

The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager, through the Representative/Agent.

The attached CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C), a close out programme report, shall be completed by the Contractor at the end of the contract.

SCHEDULE A

HIV/AIDS PROGRAMME: SITE CHECKLIST

When did construction commence: _____

Name of Departmental Project Manager: _____

Please refer to HIV/AIDS Programme activities during the reporting period

Tick the block if Contractor satisfactorily complied with specifications																												
DATE	**PI**				**PI**				**PI**				**PI**				**PI**				**PI**				**PI**			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Programme implemented within 14 days of site handover																												
Awareness champion on site																												
HIV/AIDS awareness service provider report																												
Male condom dispenser																												
Sufficient male condoms available																												
Male condom dispenser in a highly trafficked area																												
Female condom dispenser																												
Sufficient female condoms available																												
Female condom dispenser in a highly trafficked area																												
All four types of posters displayed																												
Posters in a good condition																												
Posters in a highly trafficked area																												
Posters displayed on local support services: clinic & VCT centre																												
Support service poster/s in highly trafficked area																												
Support service poster/s in a good condition																												

Please indicate the applicable number for the reporting period							
Workers on payroll (at PI)							
Sub-Contractors who will be on site for longer than 30 days (at PI)							
Workshop attendees							
Number of workshops held							
Scheduled workshops according to approved workshop plan							
Booklets distributed							
Male condoms distributed							
Female condoms distributed							

Representative/Agent

Date

Contractor

Date

Date of progress inspection: (ccyy/mm/dd)

Reporting period: (ccyy/mm/dd) _____ to (ccyy/mm/dd) _____

Deviations from HIV/AIDS awareness programme plan:

Corrective actions:

Representative/Agent	Departmental Project Manager
Date	Date

SCHEDULE B

HIV/AIDS AWARENESS PROGRAMME: SERVICE PROVIDER REPORT

Reporting period: (ccyy/mm/dd) _____ to (ccyy/mm/dd) _____

Number of workshops conducted in reporting period: _____

Number of scheduled workshops according to approved workshop plan: _____

Deviations from workshop plan:

State reasons for deviating from workshop plan:

Corrective actions:

_____ _____

Service Provider

_____ _____

Date Date

HIV/AIDS AWARENESS PROGRAMME : WORKSHOP CONTENT ADDRESSED

Fill in the applicable information with regard to each workshop conducted																												
DATE	**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Content of workshop: (Mark the content included)																												
SLO1																												
SLO2																												
SLO3																												
SLO4																												
SLO5																												
SLO6																												
SLO7																												
HIV/AIDS in construction video																												
Indicate the duration of the workshop in hours																												
Total number of Workers																												
Indicate workshop venue																												

HIV/AIDS AWARENESS PROGRAMME: ATTENDANCE REGISTER

Fill in your name and indicate attendance by ticking the appropriate date																															
DATE		**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**					
		D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M		
No	**NAMES**																														

SCHEDULE C

CONTRACTOR HIV/AIDS PROGRAMME REPORT

Project name: _____

Project Location: _____

Contract value of project: R_____

Department of Public Works Project Manager: _____

HIV/AIDS Programme duration: (ccyy/mm/dd) _____ to (ccyy/mm/dd) _____

AWARENESS MATERIAL

Describe location of posters displayed during the programme: _____

_____

Comments on posters: _____

Indicate total number of booklets distributed: _____

Comments on booklets: _____

_____

CONDOMS

Indicate total number of male condoms distributed: _____

Indicate total number of female condoms distributed: _____

Describe where male condom dispenser was placed: _____

Describe where female condom dispenser was placed: _____

HIV/AIDS WORKSHOPS

Indicate the total number of HIV/AIDS workshops conducted: _____

Indicate the duration of workshops: _____

Indicate the total number of Workers that participated in the HIV/AIDS workshops: _____

Indicate the total number of Workers that were exposed to the video on HIV/AIDS in the Construction Industry:

_____

Comments on HIV/AIDS workshops on site: _____

_____

GENERAL

Briefly describe programme activities and satisfaction with outcome: _____

_____

_____

Additional comments, suggestions or needs with regard to the HIV/AIDS awareness programmes on site:

_____

_____

_____

Please indicate if your company has a formal HIV/AIDS policy focussing on HIV/AIDS awareness raising and care and support of HIV/AIDS Workers:	Yes	No	Currently developing one

Please indicate if, to your knowledge, you have lost any workers during the duration of the project to HIV/AIDS related sicknesses. One or more of the following might indicate an HIV/AIDS related death:

Excessive weight loss	Coughing or chest pain	Vomiting
Reactive TB	Pain when swallowing	Meningitis
Hair loss	Persistent fever	Memory loss
Severe tiredness	Diarrhoea	Pneumonia

Number of HIV/AIDS-related deaths: _____

_____ _____

Contractor **Date**

_____ _____

Departmental Project Manager **Date**

C 3.2.5 ENVIRONMENTAL MANAGEMENT PLAN

PROJECT SPECIFICATIONS FOR BID FOR THE CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE IN TSOLO

ENVIRONMENTAL MANAGEMENT PLAN

PEM ENVIRONMENTAL MANAGEMENT PLAN

PEM.1 PURPOSE

The purpose of the EMP is to encourage good management practices through planning and commitment with respect to environmental issues, and to provide rational and practical environmental guidelines to minimise disturbance of the natural environment.

PEM.2 RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT

The contractor will be responsible for environmental control on site during construction and the maintenance period. The construction activities will be monitored by an independent environmental specialist and audited against the EMP.

PEM.3 TRAINING AND INDUCTION OF EMPLOYEES

The contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes sub-contractors, casual labour, etc.).

PEM.4 COMPLAINTS REGISTER AND ENVIRONMENTAL INCIDENT BOOK

Any complaints received by the project team from the community will be recorded. The complaint will be brought to the attention of the site manager.

All complaints received will be investigated and a response given to the complainant within 28 days.

All environmental incidents occurring on the site will also be recorded.

PEM.5 ENVIRONMENTAL SAFETY

The management of impacts associated with various categories of concern is discussed as separate topics, indicated below.

PEM.5.1 Soil

(a) Topsoil should be temporarily stockpiled, separately from (clay) subsoil and rocky material, when areas are cleared. If mixed with clay sub-soil the usefulness of the topsoil for rehabilitation of the site will be lost.

(b) Stockpiled topsoil should not be compacted and should be replaced as the final soil layer. No vehicles are allowed access onto the stockpiles after they have been placed.

(c) Stockpiled soil should be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet season. The need for such measures will be indicated in the site-specific report.

(d) Topsoil stripped from different sites must be stockpiled separately and clearly identified as such. Topsoil obtained from sites with different soil types must not be mixed.

(e) Topsoil stockpiles must not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the later growth of vegetation and microorganisms in the soil.

(f) Soil must not be stockpiled on drainage lines or near watercourses without prior consent from the Project Manager.

(g) Soil should be exposed for the minimum time possible once cleared of invasive vegetation, that is the timing of clearing and grubbing should be coordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion. Stockpiled topsoil must be either vegetated with indigenous grasses or covered with a suitable fabric to prevent erosion and invasion by weeds.

(h) Limited vehicular access is allowed across rocky outcrops and ridges.

(i) All cut and fill surfaces need to be stabilized with appropriate material or measures when major civil works are complete.

(j) Erosion and donga crossings must be dealt with as river crossings. Appropriate soil erosion and control procedures must be applied to all embankments that are disturbed and de-stabilized.

(k) All equipment must be inspected regularly for oil or fuel leaks before it is operated. Leakages must be repaired on mobile equipment or containment trays placed underneath immobile equipment until such leakage has been repaired.

(l) Soil contaminated with oil must be appropriately treated and disposed of at a permitted landfill site or the soil can be regenerated using bio-remediation methods.

(m) Runoff must be reduced by channeling water into existing surface drainage system.

PEM.5.2 Water

(a) Adequate sedimentation control measures must be instituted at any river crossings when excavations or disturbance of a riverbanks or riverbeds takes place.

(b) Adequate sedimentation control measures must be implemented where excavations or disturbance of drainage lines of a wetland may take place.

(c) All fuel, chemical, oil, etc. spills must be confined to areas where the drainage of water can be controlled. Use appropriate structures and methods to confine spillages such as the construction of berms and pans, or through the application of surface treatments that neutralise the toxic effects prior to the entry into a watercourse.

(d) Oil absorbent fibres must be used to contain oil spilt in water.

(e) During construction through a wetland, the majority of the flow of the wetland should be allowed to pass downstream.

(f) Vehicular traffic across wetland areas must be avoided.

(g) No dumping of foreign material in streams, rivers and/or wetland areas is allowed.

(h) The wetland area and/or river must not be drained, filled or altered in any way including alteration of a bed and/or, banks, without prior consent from the DWAF. The necessary licenses must be obtained in terms of Section 21 and 22 of the National Water Act, 36 of 1998 from DWAF.

(i) No fires or open flames are allowed in the vicinity of the wetland, especially during the dry season.

(j) No swimming, washing (including vehicles and equipment), fishing or related activity is permitted in a wetland or river without written permission from the Project Manager.

(k) Disturbances to nesting, breeding and roaming sites of animals in or adjacent to wetland areas must be minimized.

PEM.5.3 Air

(a) Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution.

(b) Dust must be suppressed on access roads and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that must not result in the generation of run-off.

(c) The site-specific investigation will quantify the impact of dust on nearby wetlands, rivers and dams in terms of sedimentation. Mitigation measures identified during the site specific study must be implemented.

(d) The Contractor must notify the Principal of all schools within 50m of the site of proposed activities. The Principal must in turn ensure that children with allergies and respiratory ailments take the necessary precautionary measures during the construction period. The Contractor must ensure that construction activities do not disturb school activities e.g. dust clouds may reduce visibility affecting sports activities.

(e) Waste must be disposed of, as soon as possible at a municipal transfer station, skip or on a permitted landfill site. Waste must not be allowed to stand on site to decay, resulting in malodours.

(f) Noise control measures must be implemented. All noise levels must be controlled at the source. All employees must be given the necessary ear protection gear. IAP's must be informed of the excessive noise factors.

(g) The Contractor must inform all adjacent landowners of any after-hour construction activities and any other activity that could cause a nuisance e.g. the application of chemicals to the work surface. Normal working hours must be clearly indicated to adjacent land owners.

(h) No loud music is allowed on site and in construction camps.

(i) No fires are allowed if smoke from such fires will cause a nuisance to IAP's.

PEM.5.4 Social and Cultural

(a) Access by non-construction people onto any construction sites must be restricted. The Contractors activities and movement of staff must be restricted to designated construction areas only.

(b) The Contractors crew must be easily identifiable due to clothing, identification cards or other methods.

(c) Rapid migration of job seekers could lead to squatting and social conflict with resident communities and increase in social pathologies if not properly addressed. The Contractor must ensure that signs indicating the availability of jobs are installed.

(d) Criteria for selection and appointment (by the Contractor) of construction labour must be established to allow for preferential employment of local communities. The Local Authority must be actively involved in the process of appointing temporary labourers.

(e) Sub-Contractors and their employees must comply with all the requirements of this document and supporting documents e.g. the Contract document that applies to the Contractor. Absence of specific reference to the sub-contractor in any specification does not imply that the sub-contractor is not bound by this document.

(f) No member of the construction workforce is allowed to wander around private property, except within the immediate surroundings of the site.

(g) The Contractor must provide suitable sanitation facilities for site staff. Sanitation provided during the construction phase should be managed so that it does not cause environmental health problems. The use of the surrounding

fields or grounds for toilet purposes is not permitted under any circumstance.

(h) The Contractor must arrange for all his employees and those of his sub-contractors to be informed of the findings of the environmental report before the commencement of construction to ensure:

- A basic understanding of the key environmental features of the work site and environments, and
- Familiarity with the requirements of this document and the site specific report.

(i) Supervisory staff of the Contractor or his sub-contractors must not direct any person to undertake any activities which would place such person in contravention of the specifications of this document endanger his/her life or cause him/her to damage the environment.

(j) The demand for construction materials and supplies will have an effect on the local economy. This impact can be optimised by sourcing and purchasing materials locally and regionally wherever possible, insofar as the material complies with the design specification.

(k) The Contractor must maintain a detailed complaints register. This must be forwarded, together with solutions, to the authorities when requested.

PEM.5.5 Aesthetics

(a) Scenic Quality

Damage to the natural environment must be minimized.

Trees and tall woody shrubs must be protected from damage to provide a natural visual shield. Excavated material must not be placed on such plants and movement across them must not be allowed, as far as practical.

The clearing of all sites must be kept to a minimum and surrounding vegetation must, as far as possible, be left intact as a natural shield.

No painting or marking of natural features must be allowed.

(b) All above ground structures could be treated or painted to blend in with the natural environment.

(c) Cut and fill areas, river and stream crossings and other soil stabilisation works must be constructed to blend in with the natural environment.

(d) Natural outcrops, rocky ridges and other natural linear features, must not be bisected. Vegetation on such features must, as far as possible, not be cut unless absolutely necessary for construction.

(e) Excavated material must be flattened (not compacted) or removed from site. No heaps of spoil material must be left on site once the Contractor has moved off site either temporarily or permanently.

(f) Any complaints from interest groups regarding the appearance of the construction site must be recorded and addressed promptly by the Contractor.

PEM.5.6 Archaeology and Cultural Sites

a) All finds of human remains must be reported to the nearest police station.

b) Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA).

c) Work in areas where artefacts are found must cease immediately.

d) Under no circumstances must the Contractor, his/her employees, his/her sub-contractors or his/her sub-contractors' employees remove, destroy or interfere with archaeological artefacts. Any person who causes intentional damage to archaeological or historical sites and/or artefacts could be penalised or legally prosecuted in terms of the National Heritage Resources Act, 25 of 1999.

e) A fence at least 2 m outside the extremities of the site must be erected to protect archaeological sites.

f) All known and identified archaeological and historical sites must be left untouched.

g) Work in the area can only be resumed once the site has been completely investigated. The Project Manager will inform the Contractor when work can resume.

PEM.5.7 Flora

a) All suitable and rare flora and seeds must be rescued and removed from the site. They must be suitably stored, for future use in rehabilitation.

b) The felling and/or cutting of trees and clearing of bush must be minimised.

c) Bush must only be cleared to provide essential access for construction purposes.

d) The spread of alien vegetation must be minimized.

e) Any incident of unauthorised removal of plant material, as well as accidental damage to priority plants, must be documented by the Contractor.

f) Woody vegetative matter stripped during construction must either be spread randomly throughout the surrounding fields so as to provide biomass for other microorganisms and habitats for small mammals and birds, or it may be stockpiled for later redistribution over the reinstated top soiled surface. No vegetative matter must be burnt or removed for firewood other than those removed during the grubbing and clearing phase. Such vegetation can be made available to the local inhabitants to be used as firewood.

g) No tree outside the footprint of the Works area must be damaged.

PEM.5.8 Fauna

a) No species of animal may be poached, snared, hunted, captured or willfully damaged or destroyed.

b) Snakes and other reptiles that may be encountered on the construction site must not be killed unless the animal endangers the life of an employee.

c) Anthills and/or termite nests that occur must not be disturbed unless it is unavoidable for construction purposes.

d) Disturbances to nesting sites of birds must be minimized.

e) The Contractor must ensure that the work site is kept clean and free from rubbish, which could attract pests.

PEM.5.9 Infrastructure

a) The relevant authorities must be notified of any interruptions of services, especially the District Municipality, Local Municipality, National Road Agency, Spoornet, TELKOM and ESKOM. In addition, care must be taken to avoid damaging major and minor pipelines and other services.

b) The integrity of property fences must be maintained.

c) No telephone lines must be dropped during the construction operations, except were prior agreement by relevant parties is obtained. All crossings must be protected, raised or relocated as necessary.

d) All complaints and/or problems related to impacts on man-made facilities and activities must be promptly addressed by the Contractor and documented.

e) Storage Facilities

- Proper storage facilities should be provided for the storage of oils, grease, fuels, chemicals and hazardous materials.
- The Contractor must ensure that accidental spillage does not pollute soil and water resources.
- Fuel stock reconciliation must be done on all underground tanks to ensure no loss of oil, which could pollute groundwater resources.
- Cement must be stored and mixed on an impermeable substratum.

f) Traffic Control

All reasonable precautions must be taken during construction to avoid severely interrupting the traffic flow on existing roads, especially during peak periods.

Before any work can start the Local Traffic Department must be consulted about measures to be taken regarding pedestrian and vehicular traffic control.

g) Access Roads

The Contractor and the affected landowner must collaborate on the planning and construction of new access routes and the repair or upgrading of existing routes.

Access to the site must be controlled such that only vehicles and persons directly associated with the work gains access to the site.

Temporary access roads must not be opened until required and must be restored to its former state as soon as the road is no longer needed.

h) Batching Plants

Concrete must be mixed only in an area demarcated for this purpose. All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site. After all concrete mixing has been completed, all waste concrete must be removed from the batching area and disposed of at an approved dumpsite. Storm water must not be allowed to flow through the batching area. Water laden with cement must be collected in a retention area for evaporation and not allowed to escape the batching area. Operators must wear suitable safety clothing.

i) Chemical toilet facilities should be managed and serviced by a qualified company. No disposal or leakage of sewerage should occur on or near the site.

j) Blasting

Blasting must not endanger public or private property.

Noise mufflers and/or soft explosives must be used to minimize the impact on animals.

All the provisions of the Explosives Act, 26 of 1956 and the Minerals Act, 50 of 1991 must be complied with.

The Contractor must take measures to limit fly rock.

PEM.5.10 Safety

a) Measures must be taken to prevent any interference that could result in flashover of power lines due to breaching of clearances or the collapse of power lines due to collisions by vehicles and equipment.

b) Measures must be taken during thunderstorms to protect workers and equipment from lightning strikes.

c) All tall structures must be properly earthed and protected against lightning strikes.

d) The process of excavation and back filling must be carried out as a sequential process following one another as quickly as possible. Excavations must only remain open for a minimum period of time and during this time they must be clearly demarcated. If excavations place the public at risk these sites must be fenced.

e) The residents directly affected by open trenches must be notified of the dangers. This will be done during the site-specific phase.

PEM.5.11 Waste

PEM 5.11.1 Solid Waste

(a) Littering on site and the surrounding areas is prohibited.

(b) Clearly marked litterbins must be provided on site. The Contractor must monitor the presence of litter on the work sites as well as the construction campsite.

(c) All bins must be cleaned of litter regularly.

(d) All waste removed from site must be disposed at a municipal/permitted waste disposal site.

(e) Excess concrete, building rubble or other material must be disposed of in areas designated specifically for this purpose and not indiscriminately over the construction site.

(f) The entire works area and all construction sites must be swept of all pieces of wire, metal, wood or other material foreign to the natural environment.

(g) Contaminated soil must be treated and disposed of at a permitted waste disposal site, or be removed and the area rehabilitated immediately.

(h) Waste must be recycled wherever possible.

PEM 5.11.2 Liquid Waste

(a) The Contractor must maintain mobile toilets on site.

(b) The Contractor must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and sited with the intention of preventing pollution of the surrounding area and environment.

(c) All vehicles must be regularly serviced in designated area within the Contractors camp such that they do not drip oil.

(d) All chemical spills must be contained and cleaned up by the supplier or professional pollution control personnel. Run-off from wash bays must be intercepted.

PEM 5.11.3 Hazardous Waste

(a) No hazardous materials must be disposed of in the field or anyplace other than a registered landfill for hazardous

material. Hazardous waste must be stored in containers with tight lids that must be sealed and must be disposed at an appropriately permitted hazardous waste disposal site. Such containers must not be used for purposes other than those originally designed for.

(b) The Contractor must maintain a hazardous material register.

PEM.5.12 Rehabilitation and Site clearance

(a) When all major construction activities are completed, the site must be inspected to determine site-specific rehabilitation measures. This may be considered as unplanned work e.g. soil rehabilitation due to oil spills.

(b) All temporary buildings and foundations, equipment, lumber, refuse, surplus materials, waste, construction rubble fencing and other materials foreign to the area must be removed.

(c) If waste products cannot be recycled they must be disposed of at a permitted landfill site.

(d) All drainage deficiencies including abandoned pit latrines and waste pits must be corrected.

(e) Cut and fill areas must be restored and re-shaped.

(f) The area must be restored to its natural vegetation condition using indigenous trees, shrubs and grasses as directed by a grassland and/or rehabilitation expert.

(g) Borrow pits must be re-shaped into even slopes and surfaces to blend with the natural terrain and topsoil must be replaced.

(h) The grass mix, shrubs and trees used for rehabilitation must be compatible with the species identified in the site-specific investigation.

(i) Areas compacted by vehicles during construction must be scarified to allow penetration of plant roots and the regrowth of natural vegetation.

PEM.6 MEASUREMENTS AND PAYMENT

No additional payment will be made to the Contractor to comply with the above actions as it will be deemed to be included in the rates tendered

C 3.2.6 LOCAL CONTENT GUIDELINES & COMPLETED EXAMPLE OF TEMPLATE

the dti
Department:
Trade and Industry
REPUBLIC OF SOUTH AFRICA

Private Bag X84, PRETORIA, 0001, **the dti** Campus, 77 Meintjies Street, Sunnyside, 0002, Tel: (012) 394 0000
the dti Customer Contact Centre local: 0861 843 384 International: +27 12 394 9500, www.thedti.gov.za

Guidance Document for the Calculation of Local Content

1. DEFINITIONS

Unless explicitly provided in this guideline, the definitions given in SATS 1286:2011 apply.

2. GENERAL

2.1. Introduction

This guideline provides tenderers with a detailed description of how to calculate local content of products (goods, services and works) by components/material/services and enables them to keep an updated record for verification requirements as per the SATS 1286:2011 Annexure A and B.

The guideline consists of two parts, namely:

- a written guideline; and
- three declarations that must be completed:
  - Declaration C: “Local Content Declaration – Summary Schedule” (see Annexure C);
  - Declaration D: “Imported Content Declaration – Supporting Schedule to Annex C” (see Annexure D); and
  - Declaration E: “Local Content Declaration – Supporting Schedule to Annex C” (see Annexure E).

The guidelines and declarations should be used by tenderers when preparing a tender. A tenderer must complete Declarations D and E, and consolidate the information on Declaration C.

Annexure C must be submitted with the tender by the closing date and time as determined by the Tender Authority. The Tender Authority reserves the right to request that Declarations D and E also be submitted.

If the tender is successful, the tenderer must continuously update Declarations C, D and E with actual values for the duration of the contract.

NOTE:

Annexure A is a note to the purchaser in SATS 1286:2011; and
Annexure B is the Local Content Declaration IN SATS 1286:2011.

2.2. What is local content?

According to SATS 1286:2011, the local content of a product is the tender price less the value of imported content, expressed as a percentage. It is, therefore, necessary to first compute the imported value of a product to determine the local content of a product.

2.3. Categories: Imported and Local Content

The tenderer must differentiate between imported content and local content.

Imported content of a product by components/material/services is separated into two categories, namely:

- products imported directly by the tenderer; and
- products imported by a third party and supplied to the tenderer.

2.3.1. Imported Content

Identify the imported content, if any, by value for products by component/material/services. In the case of components/materials/services sourced from a South African manufacturer, agent, supplier or subcontractor (i.e. third party), obtain that information and Declaration D from the third party.

Calculate the imported content of components/materials/services to be used in the manufacture of the total quantity of the products for which the tender is to be submitted.

As stated in clause 3.2.4 of SATS 1286:2011: “If information on the origin of components, parts or materials is not available, it will be deemed to be imported content.”

2.3.1.1. Imported directly by the tenderer:

When the tenderer import products directly, the onus is on the tenderer to provide evidence of any components/materials/services that were procured from a non-domestic source. The evidence should be verifiable and pertain to the tender as a whole. Typical evidence will include commercial invoices, bills of entry, etc.

When the tenderer procures imported services such as project management, design, testing, marketing, etc and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

2.3.1.2. Imported by a third party and supplied to the tenderer:

When the tenderer supplies components/material/services that are imported by any third party (for example, a domestic manufacturer, agent, supplier or subcontractor in the supply chain), the onus is on the tenderer to obtain verifiable evidence from the third party.

The tenderer must obtain Declaration D from all third parties for the related tender. The third party must be requested by the tenderer to continuously update Declaration D. Typical evidence of imported content will include commercial invoices, bills of entry etc.

When a third party procures imported services such as project management, design, testing, marketing etc. and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

2.3.1.3. Exempt Imported Content:

Exemptions, if any, are granted by the Department of Trade and Industry (**the dti**). Evidence of the exemptions must be provided and included in Annexure D.

2.3.2. Local Content

Identify and calculate the local content, by value for products by components/materials/services to be used in the manufacture of the total quantity of the products.

3. ANNEXURE C

3.1. Guidelines for completing Annexure C: Local Content Declaration – Summary Schedule

Note: The paragraph numbers correspond to the numbers in Annexure C.

C1. Tender Number

Supply the tender number that is specified on the specific tender documentation.

C2. Tender description

Supply the tender description that is specified on the specific tender documentation.

C3. Designated products

Supply the details of the products that are designated in terms of this tender (i.e. buses).

C4. Tender Authority

Supply the name of the tender authority.

C5. Tendering Entity name

Provide the tendering entity name (for example, Unibody Bus Builders (Pty) Ltd).

C6. Tender Exchange Rate

Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

C7. Specified local content %

Provide the specified minimum local content requirement for the tender (i.e. 80%), as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MDB) 6.2.

C8. Tender item number

Provide the tender item number(s) of the products that have a local content requirement as per the tender specification.

C9. List of items

Provide a list of the item(s) corresponding with the tender item number. This may be a short description or a brand name.

Calculation of local content

C10. Tender price

Provide the unit tender price of each item excluding VAT.

C11. Exempted imported content

Provide the ZAR value of the exempted imported content for each item, if applicable. These value(s) must correspond with the value(s) of column D16 on Annexure D.

C12. Tender value net of exempted imported content

Provide the net tender value of the item, if applicable, by deducting the exempted imported content (C11) from the tender price (C10).

C13. Imported value

Provide the ZAR value of the items' imported content.

C14. Local value

Provide the local value of the item by deducting the Imported value (C13) from the net tender value (C12).

C15. Local content percentage (per item)

Provide the local content percentage of the item(s) by dividing the local value (C14) by the net tender value (C12) as per the local content formula in SATS 1286.

Tender Summary

C16. Tender quantity

Provide the tender quantity for each item number as per the tender specification.

C17. Total tender value

Provide the total tender value by multiplying the tender quantity (C16) by the tender price (C10).

C18. Total exempted imported content

Provide the total exempted imported content by multiplying the tender quantity (C16) by the exempted imported content (C11). These values must correspond with the values of column D18 on Annexure D.

C19. Total imported content

Provide the total imported content of each item by multiplying the tender quantity (C16) by the imported value (C13).

C20. Total tender value

Total tender value is the sum of the values in column C17.

C21. Total exempted imported content

Total exempted imported content is the sum of the values in column C18. This value must correspond with the value of D19 on Annexure D.

C22. Total tender value net of exempted imported content

The total tender value net of exempt imported content is the total tender value (C20) less the total exempted imported content (C21).

C23. Total imported content

Total imported content is the sum of the values in column C19. This value must correspond with the value of D53 on Annexure D.

C24. Total local content

Total local content is the total tender value net of exempted imported content (C22) less the total imported content (C23). This value must correspond with the value of E13 on Annexure E.

C25. Average local content percentage of tender

The average local content percentage of tender is calculated by dividing total local content (C24) by the total tender value net of exempted imported content (C22).

4. ANNEXURE D

4.1. Guidelines for completing Annexure D: "Imported Content Declaration – Supporting Schedule to Annexure C"

Note: The paragraph numbers correspond to the numbers in Annexure D.

D1. Tender number

Supply the tender number that is specified on the specific tender documentation.

D2. Tender description

Supply the tender description that is specified on the specific tender documentation.

D3. Designated products

Supply the details of the products that are designated in terms of this tender (i.e. buses).

D4. Tender authority

Supply the name of the tender authority.

D5. Tendering entity name

Provide the tendering entity name (i.e. Unibody Bus Builders (Pty) Ltd).

D6. Tender exchange rate

Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

<u>Table A. Exempted Imported Content</u>

D7. Tender item number

Provide the tender item number(s) of the product(s) that have imported content.

D8. Description of imported content

Provide a list of the exempted imported product(s), if any, as specified in the tender.

D9. Local supplier

Provide the name of the local supplier(s) supplying the imported product(s).

D10. Overseas supplier

Provide the name(s) of the overseas supplier(s) supplying the exempted imported product(s).

D11. Imported value as per commercial invoice

Provide the foreign currency value of the exempted imported product(s) disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

D12. Tender exchange rate

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D13. Local value of imports

Convert the value of the exempted imported content as per commercial invoice (D11) into the ZAR value by using the tender exchange rate (D12) disclosed in the tender documentation.

D14. Freight costs to port of entry

Provide the freight costs to the South African Port of the exempted imported item.

D15. All locally incurred landing costs and duties

Provide all landing costs including customs and excise duty for the exempted imported product(s) as stipulated in the SATS 1286:2011.

D16. Total landed costs excl VAT

Provide the total landed costs (excluding VAT) for each item imported by adding the corresponding item values in columns D13, D14 and D15. These values must be transferred to column C11 on Annexure C.

D17. Tender quantity

Provide the tender quantity of the exempted imported products as per the tender specification.

D18. Exempted imported value

Provide the imported value for each of the exempted imported product(s) by multiplying the total landed cost (excl. VAT) (D16) by the

tender quantity (D17). The values in column D18 must correspond with the values of column C18 of Annexure C.

D19. Total exempted imported value

The total exempted imported value is the sum of the values in column D18. This total must correspond with the value of C21 on Annexure C.

Table B. Imported Directly By Tenderer

D20. Tender item numbers

Provide the tender item number(s) of the product(s) that have imported content.

D21. Description of imported content:

Provide a list of the product(s) imported directly by tender as specified in the tender documentation.

D22. Unit of measure

Provide the unit of measure for the product(s) imported directly by the tenderer.

D23. Overseas supplier

Provide the name(s) of the overseas supplier(s) supplying the imported product(s).

D24. Imported value as per commercial Invoice

Provide the foreign currency value of the product(s) imported directly by tenderer disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

D25. Tender rate of exchange

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D26. Local value of imports

Convert the value of the product(s) imported directly by the tenderer as per commercial invoice (D24) into the ZAR value by using the tender exchange rate (D25) disclosed in the tender documentation.

D27. Freight costs to port of entry

Provide the freight costs to the South African Port of the product(s) imported directly by the tenderer.

D28. All locally incurred landing costs and duties

Provide all landing costs including customs and excise duty for the product(s) imported directly by the tenderer as stipulated in the SATS 1286:2011.

D29. Total landed costs excl VAT

Provide the total landed costs (excluding VAT) for each item imported directly by the tenderer by adding the corresponding item values in columns D26, D27 and D28.

D30. Tender quantity

Provide the tender quantity of the product(s) imported directly by the tenderer as per the tender specification.

D31. Total imported value

Provide the total imported value for each of the product(s) imported directly by the tenderer by multiplying the total landed cost (excl. VAT) (D29) by the tender quantity (D30).

D32. Total imported value by tenderer

The total value of imports by the tenderer is the sum of the values in column D31.

Table C. Imported by Third Party and Supplied to the Tenderer

D33. Description of imported content

Provide a list of the product(s) imported by the third party and supplied to the tenderer as specified in the tender documentation.

D34. Unit of measure

Provide the unit of measure for the product(s) imported by the third party and supplied to tenderer as disclosed in the commercial invoice.

D35. Local supplier

Provide the name of the local supplier(s) supplying the imported product(s).

D36. Overseas supplier

Provide the name(s) of the overseas supplier(s) supplying the imported products.

D37. Imported value as per commercial invoice

Provide the foreign currency value of the product(s) imported by the third party and supplied to the tenderer disclosed in the commercial invoice accepted by SARS.

D38. Tender rate of exchange

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D39. Local value of imports

Convert the value of the product(s) imported by the third party as per commercial invoice (D37) into the ZAR value by using the tender exchange rate (D38) disclosed in the tender documentation.

D40. Freight costs to port of entry

Provide the freight costs to the South African Port of the product(s) imported by third party and supplied to the tenderer.

D41. All locally incurred landing costs and duties

Provide all landing costs including customs and excise duty for the product(s) imported by third party and supplied to the tenderer as stipulated in the SATS 1286:2011.

D42. Total landed costs excluding VAT

Provide the total landed costs (excluding VAT) for each product imported by third party and supplied to the tenderer by adding the corresponding item values in columns D39, D40 and D41.

D43. Quantity imported

Provide the quantity of each product(s) imported by third party and supplied to the tenderer for the tender.

D44. Total imported value

Provide the total imported value of the product(s) imported by third party and supplied to the tenderer by multiplying the total landed cost (D42) by the quantity imported (D43).

D45. Total imported value by third party

The total imported value from the third party is the sum of the values in column D44.

Table D. Other Foreign Currency Payments

D46. Type of payment

Provide the type of foreign currency payment. (i.e. royalty payment for use of patent, annual licence fee, etc).

D47. Local supplier making the payment

Provide the name of the local supplier making the payment.

D48. Overseas beneficiary

Provide the name of the overseas beneficiary.

D49. Foreign currency value paid

Provide the value of the listed payment(s) in their foreign currency.

D50. Tender rate of exchange

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D51. Local value of payments

Provide the local value of each payment by multiplying the foreign currency value paid (D49) by the tender rate of exchange (D50).

D52. Total of foreign currency payments declared by tenderer and/or third party

The total of foreign currency payments declared by tenderer and/or a third party is the sum of the values in column D51.

D53. Total of imported content and foreign currency payment

The total imported content and foreign currency payment is the sum of the values in column D32, D45 and D52. This value must correspond with the value of C23 on Annexure C.

5. ANNEXURE E

5.1. Guidelines to completing Annexure E: "Local Content Declaration- Supporting Schedule to Annexure C"

The paragraph numbers correspond to the numbers in Annexure E

E1. Tender number

Supply the tender number that is specified on the specific tender documentation.

E2. Tender description

Supply the tender description that is specified on the specific tender documentation.

E3. Designated products

Supply the details of the products that are designated in terms of this tender (for example, buses/canned vegetables).

E4. Tender authority

Supply the name of the tender authority.

E5. Tendering entity name

Provide the tendering entity name (for example, Unibody Bus Builders (Pty) Ltd) Ltd).

Local Goods, Services and Works

E6. Description of items purchased

Provide a description of the items purchased locally in the space provided.

E7. Local supplier

Provide the name of the local supplier that corresponds to the item listed in column E6.

E8. Value

Provide the total value of the item purchased in column E6.

E9. Total local products (Goods, Services and Works)

Total local products (goods, services and works) is the sum of the values in E8.

E10. Manpower costs:

Provide the total of all the labour costs accruing only to the tenderer (i.e. not the suppliers to tenderer).

E11. Factory overheads:

Provide the total of all the factory overheads including rental, depreciation and amortisation for local and imported capital goods, utility costs and consumables. (Consumables are goods used by individuals and businesses that must be replaced regularly because they wear out or are used up. Consumables can also be defined as the components of an end product that are used up or permanently altered in the process of manufacturing, such as basic chemicals.)

E12. Administration overheads and mark-up:

Provide the total of all the administration overheads, including marketing, insurance, financing, interest and mark-up costs.

E13. Total local content:

The total local content is the sum of the values of E9, E10, E11 and E12. This total must correspond with C24 of Annexure C.

SATS 1286.2011

Annex C

SAMPLE FOR 100% LOCAL CONTENT ONLY

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	PE 88/2016
(C2)	**Tender description:**	EAST LONDON, CONVERSION AND REFURBISHMENT OF 38 KINGS STREET SATELITE OFFICE
(C3)	**Designated product(s)**	ELECTRICAL CABLES
(C4)	**Tender Authority:**	NDPW
(C5)	**Tendering Entity name:**	* ASHANTI CONSTRUCTION CC
(C6)	**Tender Exchange Rate:**	Pula [ ] EU [ ] GBP [ ]
(C7)	**Specified local content %**	90%

Note: VAT to be excluded from all calculations

Calculation of local content								Tender summary			
Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
37	2.5mm PVCA 3 core	R 80.00	R 0.00	R 80.00	R 0.00	R 80.00	100%	40	R3 200.00	R 0	R 0
38	16mm PVCA 2 core	R 150.00	R 0.00	R 150.00	R 0.00	R 150.00	100%	40	R6 000.00	R 0	R 0
39	CATS cable	R 85.00	R 0.00	R 85.00	R 0.00	R 85.00	100%	30	R2 550.00	R 0	R 0
40	1.5mm single core	R 99.00	R 0.00	R 99.00	R 0.00	R 99.00	100%	600	R59 400.00	R 0	R 0
41	2.5mm single core	R 55.00	R 0.00	R 55.00	R 0.00	R 55.00	100%	50	R2 750.00	R 0	R 0
42	4mm single core	R 70.00	R 0.00	R 70.00	R 0.00	R 70.00	100%	300	R21 000.00	R 0	R 0
43	6mm single core	R 35.00	R 0.00	R 35.00	R 0.00	R 35.00	100%	15	R525.00	R 0	R 0
44	10mm single core	R 90.00	R 0.00	R 90.00	R 0.00	R 90.00	100%	5	R450.00	R 0	R 0
45	16mm single core	R 100.00	R 0.00	R 100.00	R 0.00	R 100.00	100%	40	R4 000.00	R 0	R 0

(C20) Total tender value	R99 875.00
(C21) Total Exempt imported content	R 0
(C22) Total Tender value net of exempt imported content	R 99 875
(C23) Total Imported content	R 0
(C24) Total local content	R 99 875
(C25) Average local content % of tender	100.00%

Signature of tenderer from Annex B

* _____ CONTRACTOR SIGNATURE

Date: * _____ DATE

Annex C

SAMPLE FOR 90% LOCAL CONTENT ONLY

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	PE 88/2016
(C2)	**Tender description:**	EAST LONDON, CONVERSION AND REFURBISHMENT OF 38 KINGS STREET SATELITE OFFICE
(C3)	**Designated product(s)**	ELECTRICAL CABLES
(C4)	**Tender Authority:**	NDPW
(C5)	**Tendering Entity name:**	* ASHANTI CONSTRUCTION CC
(C6)	**Tender Exchange Rate:**	Pula [ ] EU [ ] GBP [R 14.11]
(C7)	**Specified local content %**	90%

Note: VAT to be excluded from all calculations

Calculation of local content								Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
37	2.5mm PVCA 3 core	R 80.00	R 0.00	R 80.00	R 8.00	R 72.00	90%	40	R3 200.00	R 0	R 320
38	16mm PVCA 2 core	R 150.00	R 0.00	R 150.00	R 15.00	R 135.00	90%	40	R6 000.00	R 0	R 600
39	CATS cable	R 85.00	R 0.00	R 85.00	R 8.50	R 76.50	90%	30	R2 550.00	R 0	R 255
40	1.5mm single core	R 99.00	R 0.00	R 99.00	R 9.90	R 89.10	90%	600	R59 400.00	R 0	R 5 940
41	2.5mm single core	R 55.00	R 0.00	R 55.00	R 5.50	R 49.50	90%	50	R2 750.00	R 0	R 275
42	4mm single core	R 70.00	R 0.00	R 70.00	R 7.00	R 63.00	90%	300	R21 000.00	R 0	R 2 100
43	6mm single core	R 35.00	R 0.00	R 35.00	R 3.50	R 31.50	90%	15	R525.00	R 0	R 53
44	10mm single core	R 90.00	R 0.00	R 90.00	R 9.00	R 81.00	90%	5	R450.00	R 0	R 45
45	16mm single core	R 100.00	R 0.00	R 100.00	R 10.00	R 90.00	90%	40	R4 000.00	R 0	R 400

(C20) **Total tender value**	R99 875.00	
(C21) **Total Exempt imported content**	R 0	
(C22) Total **Tender value net of exempt imported content**	R 99 875	
(C23) **Total Imported content**		R 9 988
(C24) **Total local content**		R 89 887
(C25) **Average local content % of tender**		90.00%

Signature of tenderer from Annex B

* _____ CONTRACTOR SIGNATURE

Date: * _____ DATE

				R	
	Brought Forward				
	uPVC trunking with cover fixed to brickwork				
31	50x50mm "EGA-DUCT" trunking	m	40		
	CONDUCTORS				
	PVC insulated stranded copper conductors drawn into wireways				
32	1,5mm²	m	250		
33	2,5mm²	m	900		
34	4mm²	m	250		
35	10mm²	m	22		
36	16mm²	m	40		
	CABLES				
37	2,5mm² PVCA 3-Core	m	40	R80	R3200
38	16mm² PVCA 2-Core	m	40	R150	R6000
39	CAT 5 cable (*Gate intercom System)*	m	30	R85	R2550
	600/1000 V PVC/PVC/SWA/PVC copper cable pulled in cable sleeves (sleeves measured elsewhere)				
40	1,5mm² single-core	m	600	R99	R59400
41	2,5mm² single-core	m	50	R55	R2750
42	4mm² single-core	m	300	R70	R21000
43	6mm² single-core	m	15	R35	R525
44	10mm² single -core	m	5	R90	R450
45	16mm² single-core	m	40	R100	R4000
	EARTHING				R99875
	Carried Forward			R	

PART C4: SITE INFORMATION

EASTERN CAPE GOVERNMENT
DEPARTMENT OF RURAL DEVELOPMENT AND AGRARIAN REFORM

BID FOR THE CONSTRUCTION OF 300 SEATER EXAM HALL AT THE TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE AT TSOLO

C4.1 Site Information

ITEM	DESCRIPTION
Site Location	TSOLO AGRICULTURAL AND RURAL DEVELOPMENT INSTITUTE is in Tsolo, Eastern Cape Province
GPS co ordinates	Tsolo Agricultural & Rural Development Institute co-ordinates : 31° 17'38.00 S 28° 45'48.00 E
General geography	Landscaped grassed areas, with excavatable material and underlying boulders. Bearing strengths in excess limits required for construction
Road conditions	Tarred access road and fair gravel road internally – access to an Agricultural College
Site extent	2.1ha
Site clearance required	Yes
Site soil properties	Soil conditions are fair and suitable for normal excavation, bearing properties exceed that of min requirements for developments of this nature.
Site vegetation	Grass
Site fenced	No
Site access	Via the main campus security gates
Services available	All services are available subject to agreement with campus authority
Accommodation	Provide own
Labour	Negotiate local labour with the community and client
Storage of materials	Provide own
Security	Provide own
Construction difficulty	Medium difficulty
Plant required	Water tanks, Jack hammers, Compact rollers, whacker, concrete mixer, generator with welder, concrete vibrator.
Equipment / tools required for	Contractor to identify specific tools for various tasks
Transport required	For all materials For all plant, equipment and tools For contractor's personnel
Testing of works	Concrete test cubes for testing of concrete strength; Laboratory testing of compacted area Engineer to oversee testing of the completed Works
Commissioning of works	Contractor to commission and test.