



INDEPENDENT DEVELOPMENT TRUST

Contract No.: DOEEC/03/2023/2024

A Bid for Category 5GB or higher CIDB Registered Contractors

BUBESI JUNIOR SECONDARY SCHOOL

LOCATED MATATIELE, ALFRED NDZO DISTRICT, EASTERN CAPE PROVINCE

Name of Bidder : _____

NAME OF DULY AUTHORIZED PERSON: _____

ADDRESS : _____

TEL. NUMBER : _____

CELL NUMBER : _____

FAX NUMBER : _____

E-MAIL : _____

CRS NUMBER : _____

CSD NUMBER : _____

ISSUED BY:

Independent Development Trust

Palm Square Business Park
Bonza Bay Road
Silverwood House, Beacon Bay, 5205
Ms. N. Dyasi
Tel: (043) 711-6000

PREPARED BY:

VHB ASSOCIATES

48 Bisset Street
Port Shepstone
4240
Ms. N. Takaindisa
Tel: 039 032 0003/ 039 251 0476



INDEPENDENT DEVELOPMENT TRUST

AT

BUBESI JUNIOR SECONDARY SCHOOL

LOCATED IN MATATIELE, ALFRED NDZO DISTRICT, EASTERN CAPE PROVINCE

BID NO: DOEEC/03/2023/2024

CLOSING DATE: 20 June 2023

ISSUED

Independent Development Trust

Physical Address,
Palm Square Business Park
Bonza Bay Road
Beacon Bay, 5205
Contact: Ms. N. Dyasi
Telephone: 043 711 6000

PRINCIPAL AGENT

VHB ASSOCIATES

Physical Address,
48 Bisset Street
Port Shepstone
4240
Contact:
Name: Ms. N. Takaindisa
Tel: 039 023 0003 / 039 251 0476

PREPARED BY

MAXFIELD QUANTITY SURVEYORS
5 CANNO STREET
FORT GALE
MTHATHA
5100
NAME: QHAWWE NKASANA
TEL: 078 111 7370



INDEPENDENT DEVELOPMENT TRUST

Scope of work is for construction of GRADE R at Bubesi JSS.

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C3	Scope of Work
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C4	Site Information
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INDEPENDENT DEVELOPMENT TRUST

T1.1 Bid Notice and Invitation to Bidder

BID NOTICE No: DOEEC/03/2023/2024: DATE 19 May 2023

Note: BID closes on Tuesday, 20 June 2023 @ 11:00

**Project No.: BUBESI JSS (EMIS NO. 200500061)
GPS : 30.3140.5 S, 28.4210.0 E**

CONSTRUCTION OF GRADE R AT BUBESI JUNIOR SECONDARY SCHOOL, MATATIELLE, ALFRED NDZO DISTRICT MUNICIPALITY FOR THE DEPARTMENT OF EDUCATION, EASTERN CAPE PROVINCE

On behalf of the DEPARTMENT OF EDUCATION, the Independent Development Trust, invites bidders for CONSTRUCTION OF GRADE R AT BUBESI JUNIOR SECONDARY SCHOOL IN MATATIELLE, ALFRED NDZO MUNICIPALITY, EASTERN CAPE PROVINCE

Mandatory Requirements

Only bidders, who meet the following requirements will be eligible for further evaluation;

- Proof of CIDB registration number – Grade **5GB** or higher
- Proof of authority to sign the document must be submitted e.g. company resolution (if there is more than one director)
- Valid COIDA or FEM certificate
- Attendance of Compulsory Site Briefing
- Fully Completed and Signed SBD 1 - Invitation to Bid
- Fully Completed and Signed SBD 4 – Bidder's Disclosure
- Fully Completed and Signed SBD 6.1 – Preference Points
- Fully Completed and Signed SBD 6.2 – Declaration for Local Content (Annexure C included)
- Fully Completed and Signed Form of offer in the bid document
- Copy of the Joint Venture (JV) agreement signed by all parties (where JV in use)
- Acknowledgement of Addenda with Financial implications (where applicable)
- Completed BOQ (in black pen ink- In cases where only final amount is provided, it will be considered that the total amount is inclusive of all items on the BoQ and are inclusive of VAT))
- CIPC Document
- Original Certified Director's ID ,not older than 3 months

- Note:**
- (i) Failure to submit any of the above documents / requirements shall result in disqualification of the bid.
 - (ii) If any of the Directors are in the Employment of the State shall result in disqualification of the bid.

- (iii) If any of its Directors are Listed on the Register of Defaulters shall result in dis-qualification of the bid.
- (iv) In the case of a Bidder, who during the last ten (10) years has been Terminated on Previous Contracts with the IDT shall result in disqualification of the bid.

The IDT will assess all bids received based on its procurement policy in the event that information is required from the bidder/s, the IDT reserves its rights to request the information which shall be submitted within seven (7) working days from request and failure to submit will result in disqualification.

Returnable documents required at Bid Award -

- Tax Compliance Letter with a unique pin
- CSD
- BBBEE Certificate or Sworn Affidavit

Only bidders who are competent in the advertised work and who have achieved the minimum functionality threshold will be evaluated on a **80/20** (Price / Specific Goals) points based on the Preferential Procurement Regulations of 2022, where functionality will be evaluated as follows:

STAGE 1:

Evaluation Criteria	Points Allocation
Relevant Previous Experience on completed projects of a similar nature and value in the last Ten (10) years	35 points
Signed and stamped client references on the same projects listed above (either Client or Client Representative).	25 points
Qualifications, Skills and Experience of project key resources	20 points
Project Schedule	20 points
Total	100 points
NB: Minimum qualifying functionality threshold is 70 points out 100	

Similar Nature of work for evaluation- Not acceptable (No points will be allocated for similar nature and value of works for Engineering works)

Similar Nature of Work - Acceptable : (Construction and or renovation of Hospitals, Clinics, Schools, Libraries, Hotels, Malls, Shopping Complex, Courts, Office blocks, Town Houses – **5GB or higher**)

STAGE 2:

The 80/20 Preferential Point System will be applied, where 80 points will be allocated for price and 20 points for Specific Goals.

Only bidders who obtain **70 points or higher** on the functionality threshold will be evaluated further.

A compulsory site briefing / clarification meeting will be held on the 30 May 2023 at Bubesi JSS, Matatiele

Note: Bidders are requested and encouraged to arrive early before the commencement of the briefing session at **11h00am**. No late arrivals will be allowed in the briefing meeting. (i.e later than **11h30**). An inspection of the site will follow after the aforementioned compulsory briefing meeting as will be directed in the briefing meeting

IT IS NOT A CONDITION OF THIS BID THAT THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO SUBCONTRACT A MINIMUM VALUE OF WORK TO SMME'S EQUAL TO 30% OF THE BUILDING WORKS IN LINE WITH THE PPPFA, Preferential Procurement Regulations 2017.

The IDT will conduct a risk assessment on recommended bidder/s. Bidders are requested to price each line item of the Bills of Quantities (BOQ) in black ink. Should the bidder/s be deemed too risky to complete the project based on the IDT's risk assessment report, they will be subjected for further clarification.

Bid Documents may be downloaded from the IDT's website as follows: www.idt.org.za as well as on the e-Bids portal, www.etenders.co.za from the 19th of May 2023. Bids must only be submitted on the bid documentation that is downloaded from the stipulated websites. The retyping of the Bid document is not permitted.

All SCM and Technical enquiries relating to this bid must be directed to nomnikelod@idt.org.za (SCM) naki@vhbassociates.co.za (Technical) during office hours (08h30 – 17h00) weekdays.

On submission of Bid documents, the bidder must submit a signed original bid document in hard copy. Original bid document written in ink and not eraserable.

Requirements for sealing, addressing, delivery, opening and assessment of bids are stated in the Bid Data. (Refer to Section T1.2)

The bid closing date is **20 June 2023 by no later than 11H00**. Bids shall be submitted in the bidding box at IDT's Eastern Cape Regional Office;

**INDEPENDENT DEVELOPMENT TRUST,
PALM SQUARE BUSINESS PARK, SILVERWOOD HOUSE,
BONZA BAY ROAD,
BEACON BAY,
EAST LONDON**

Telegraphic, telephonic, telex, facsimile, e-mail and late bids **WILL NOT** be accepted.

The Independent Development Trust does not bind itself to accept the lowest or any particular bid.

INDEPENDENT DEVELOPMENT TRUST

T1.2 Bidder Data

The conditions of bidding are the Standard Conditions of Bidding as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement. (See www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of bidders as an Annex to this Bid Data.

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

The additional conditions of bidder are:

Clause number	Bidder Data for BID NO: BID No: DOEEC/03/2023/2024
F.1.1	The employer is the Independent Development Trust, Eastern Cape Region
F.1.2	The bid documents issued by the employer comprises: - T1.1 Bid notice and invitation to bid - T1.2 Bid data - T2.1 List of returnable documents - T2.2 Returnable schedules Part 1: Agreements and contract data - C1.1 Form of offer and acceptance - C1.2 Contract data - C1.3 Form of Guarantee - C1.4 Adjudicator's appointment Part 2: Pricing data - C2.1 Pricing instructions - C2.2 Activity schedules / Bills of Quantities Part 3: Scope of work - C3 Scope of work Part 4 : Site information - C4 Site information
F.1.4	The employer's agent is: Name: VHB Associates Address: 48 Bisset Street, Port Shepstone Tel 039 – 032 0003 E-mail: vhb@vhbassociates.co.za
F.2.1	Only those bidders who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum Bided for a Grade 5GB or higher class of construction work, are eligible to submit Bids. Joint ventures are eligible to submit Bids provided that: 1. every member of the joint venture is registered with the CIDB; 2. the lead partner has a contractor grading designation in the Grade 5GB or higher class of construction work; and 3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum Bided for a (5GB or higher) General Building class of construction work.

F.2.7 Compulsory briefing with representatives of the employer

F.2.12 No alternative Bid offers will be considered

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

F.2.13.5 The employer's address for delivery of Bid offers and identification details to be shown on each Bid offer
F2.15.1 package are:

Location of Bid box: Physical address: -

INDEPENDENT DEVELOPMENT TRUST OFFICES

Palm Square Business Park
Silverwood House, Beacon Bay
EAST LONDON
5201

Identification details:

Project no: BID No: DOEEC/03/2023/2024

Title: Construction of Grade R at Bubesi Junior Secondary School.

Postal address: Palm Square Business Park, Silverwood House, Bonza Bay Road, Beacon Bay, 5201

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

Closing date: 20 June 2023

Closing time: 11h00

F.2.15 Telephonic, Telegraphic, Telex, Facsimile or E-mailed Bid offers will not be accepted.

F.2.16 The Bid offer validity period is **90 (Ninety) days**.

F.2.17 The contract duration is **8 Months** from date of Site Handover.

F.2.23 The Bidder is required to submit with his Bid a Certificate of Contractor Registration issued by the Construction Industry Development Board; Compensation of Injury Diseases Act certificate (COIDA) . Where a Bidder Bids through joint venture formation, such bidders should include a joint venture agreement duly signed by each partner.

F.3.4 Bids will not be opened in public, they will be posted on the IDT Website within 7 days of closure.

F.3.11 Bid offers will only be accepted if the following are submitted

No	Gate Keeper (Compulsory) Criteria	Gate Keeper Criteria Description
1	Proof of authority to sign the document must be submitted e.g. company resolution (if there is more than one director)	Proof of authority to sign the document must be submitted on Company Letterhead e.g. company resolution.
2	Letter of good standing/Copy of registration (COIDA/FEM) from the Department of Labour	Valid Letter of Good Standing (Workman's Compensation, COIDA) or FEM Letter of Good Standing. If JV all partners must submit
3	CIDB Grading Certificate.	Required valid and active CIDB Grading equivalent for the works. JV's to submit consolidated CIDB Grading.
4	Fully & Duly Completed Detailed Bill of Quantities (BOQ), Written In Black Ink	All items in the original Bill of Quantities must be priced (rates and amounts and totals) with the exception of preliminaries (contractor can select options in line with the PBA JBCC March 2005 Edition 4.1), written in Ink.
5	Consortium / Joint Venture Agreement	If Applicable , JV Agreement signed by all parties of the JV.
6	Duly Completed Form of Offer	Fully & Duly Completed and Signed form of offer and witnessed. All blanks spaces must be completed.
7	Duly completed and signed Invitation to BID, Part A and B (SBD 1)	Fully & Duly Completed and signed Invitation to BID, Part A and B (SBD 1). All blank spaces must be completed. Bidders to indicate items that are not applicable.
8	Bidders Disclosure (SBD 4)	Fully & Duly Completed and Signed Declaration of Interest Form (SBD 4). All blank spaces must be completed. Bidders to indicate items that are not applicable.
9	Duly Completed and Signed Preference points claim form in terms of PPPFA, Procurement Regulations 2017 (SBD 6.1)	Fully & Duly Completed and Signed Preference points claim form in terms of PPPFA, Procurement Regulations 2017 (SBD 6.1). All blanks spaces must be completed. Bidders to indicate items that are not applicable.
10	Duly Completed and Signed Local content form (SBD 6.2)	Fully & Duly Completed and Signed Local content form (SBD 6.2) including all the annexures C, D & E. Bidders must return Annexure C. Annexure D & E to be kept by the bidder for verification/audit upon appointment. All blanks spaces must be completed. Bidders to indicate items that are not applicable. Only locally (South Africa) manufactured product that meet the stipulated minimum threshold for local content will be considered (Preferential Procurement Regulations 2017). A Bid that fails to meet the stipulated threshold for local production and content is unacceptable and will be disqualified
11	No Copies, no correctional fluids, erasable pen or a lead pencil will be used on any of the submitted forms. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties.	No Copies, no correctional fluids, erasable pen or a lead pencil will be used on any of the submitted forms. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties.
12	Acknowledgement of Addenda to the Bid document	To be completed and signed

Instruction notes:

- All blanks spaces must be completed on all the SBD forms.
- Bidders to indicate items that are not applicable to them on all the forms.
- Bidders are advised to fill in the correct information on all the SBD forms.
- Bidders are encouraged to familiarize themselves with the project site in order to assist them in planning, pricing and executing the project.
- All Bidders are required to be registered on CSD (Central Supplier Database) with National Treasury.
- Please Provide CSD Registration report with supplier number with your Bid.

4.3.3 Functionality Criteria

Variables	Total Points	Criteria	Description Of Criteria	Points
<u>Functionality Points</u>	100			
Experience on similar scale projects	35	Excellent	Points allocated for proven records of accomplishment based on the similar scale of previous projects executed by Bider.	35
		Very good		28
		Good		21
		Satisfactory		14
		Poor		7
		Not acceptable		0
Qualifications & competencies of key staff	20	Very Good	Points allocated for required competencies and qualifications of allocated personnel for the projects in consideration	20
		Good		15
		Satisfactory		10
		Poor		5
		Very poor		1
		Not submitted		0
Project Specific Programme schedule and cash flow	20	Very good	Points allocated for turn-around projects delivery period and detail project submission by Bider/bidder in consideration	20
		Good		18
		Satisfactory		14
		Poor		8
		Unacceptable		0
Client References	25	Excellent	Points allocated for previous client references and submission in relation to nature of work in Relevant Experience (Returnable schedule) of the Bid Document.	25
		Good		20
		Fair		15
		Poor		10
		Very poor		5

Notes:

1. **Bidders are required to score minimum points of 70 (70%) for Functionality stated in Bid data.**
2. **Bidders who fail to meet the required minimum number of points for functionality stated in the Bid data will not be evaluated further.**
3. **Bidders who fail to submit information as per the returnable schedules will not be allocated points.**

The functionality will be scored using the following values:

A maximum equal to 100 Bid evaluation points will be awarded for quality, sub-divided according to the following:

Functionality area	Points
Previous Experience	35
Client Reference	25
Qualification and Competency	20
Project Schedule	20
Total	100 points

Experience on similar scale projects:

The quality criteria and maximum score in respect of each of the criteria are as follows:

Scoring Quality (Functionality)

A maximum equal to **100 Bid evaluation points** will be awarded for Functionality. Only bidders who score 70% and above (i.e. 70 points and above out of a total of 100 points) will be further evaluated in terms of the 80/20 price/preference points system.

The functionality will be scored using the following values:

Relevant Experience on Similar Construction Projects (35 points):

Points are allocated for relevant experience on similar construction projects completed in the past 10 years. The similarity refers to projects of similar kind, complexity and value in terms of the CIDB categorization. In support bidders are to complete the "Similar Project Experience" returnable schedule.

Evaluation points will be awarded in terms of the following table:

Number of Similar Construction Projects completed in the last 10 years	Number of points
5	35
4	28
3	21
2	14
1	7
0	0

Value of work evaluation (No points will be allocated for value of works for Civil Engineering Projects, Water, Transport, Traffic Engineering and all Electrical & Mechanical Projects)

Value of work (4GB)	Rating
3.1m and above	Very Good
2.1m – 3m	Good
1.1m – 2m	Satisfactory
0.51m – 1m	Poor
0m – 0.5m	Not Submitted

Value of work (5GB)	Rating
10.1m and above	Very Good
5.1m – 10m	Good
3.1m – 5m	Satisfactory
1.1m – 3m	Poor
0m – 1m	Not Submitted

Value of work (7GB)	Rating
20.1m and above	Very Good
10.1m – 20m	Good
5.1m – 10m	Satisfactory
2.1m – 5m	Poor
0m – 2m	Not Submitted

Contracting Document

JBCC Series 2000 PBA March 2005, Edition 4.1

Qualifications and Key Personnel (20 points):

Points are allocated for educational qualifications and professional registration of allocated key personnel for the project under consideration. For each key personnel allocated to the project, the bidders shall submit for following: Curriculum Vitae together with certified proof of qualifications and professional registration.

Evaluation points will be awarded in terms of the following tables:

Highest qualifications and Professional Registration (8 points)

Category	Qualification		Professional Registration	
	Degree/BTech	Diploma	Yes	No
Contract Director/Manager	3	2	1	0
Site Agent/Manager	3	2	1	0
Subtotal number of points	6	4	2	0

Competence of Key Personnel (Subtotal 12 Points)

Category	Experience			
	Between 1- 4 years	Between 4-8years	Between 8-12 years	Over 12 years
Contract Director/Manager	2	4	5	6
Site Agent/Manager	2	4	5	6
Subtotal number of points	4	8	10	12

CLIENT REFERENCES

The Bidder shall provide details of his performance on each of the previous projects listed in the “Similar Relevant Experience” returnable schedule. Client References” scorecards will be completed by each of the respective Clients for the projects listed in the “Similar Relevant Experience” returnable schedule. Forms not signed, stamped and completed by the client will result in no allocation of points (zero points).

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Program management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of materials					
Labour relations					

Project Schedule (20 points):

Points are awarded for project duration undertaking as per returnable activity schedule **B1.2**. This represents only key project deliverables and runs from the assumed start date indicated, for purposes of uniformity and ease of comparison. **The submitted Programme must be project specific.**

Failure to populate returnable schedule **B1.2 in full will result in zero points awarded, alternatively a properly populated gantt chart will be acceptable (Construction Programme on MS Project or similar is also acceptable). (NB: Bidders reminded that penalty clause is applicable**

in the event that bidders offer unrealistically short duration just to score higher points)

The shortest realistic project duration will receive 20 points, with comparative duration awarded points in line with the formula below:

$$\text{PrSc} = 20 \times (\text{Dm}/\text{D})$$

Where:

PrSC = No. of points scored for project schedule

Dm = lowest acceptable comparative project duration in Days

D = Comparative project duration in days of Bid under consideration

4.3.4. Preferential procurement system

80/20 preferential procurement system to be utilized as per PPPFA 2017. The project is below R50m.

Variables	Total Points	Criteria	Description Of Criteria	Points
Financial Offer / Price:				
Financial Offer/Price	80	Formula=2 Option 1, $A=(1-\{p-pm/pm\})$	Formula used to calculate financial offer/price points	
		Pm=The comparative Price offer of the mean/average quantifying Bidder		
		P=The comparative offer of the Bid under consideration		

The specific goals allocated points in terms of this Bid	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the Bider)	Number of points claimed (80/20 system) (To be completed by the Bider)
Women	3	6		
Youth	3	6		
People with Disabilities	2	4		
Black	2	4		
TOTAL POINTS CLAIMED				

1. LIST OF RETURNABLE SCHEDULES

Returnable Schedules required only for Bid evaluation purposes (certified copies not older than six months or originals of the following documents):

No	Non Statutory (Non Compulsory) Requirements	Non Statutory (Non Compulsory) Requirements Description
1	Checklist for Bid Submission	Checklist for Bid Submission
2	Details of Bid	Details of Bid
3	Certificate of Compliance with Bid Documentation	Certificate of Compliance with Bid Documentation
4	Letter of Intent to Provide Security / Guarantee	Letter of Intent to Provide Security/ Guarantee from accredited financial institution
5	Litigation History	Litigation History – bidder to disclose all the pending litigations against their company
6	BBBEE certificate	Points allocated to entities who are contributing towards the empowerment of black people (an Original Sworn Affidavit B-BBEE or SANAS accredited B-BBEE Certificate MUST be submitted with the bid documents before any points can be allocated) Bidders to submit Original Sworn Affidavit B-BBEE or SANAS certified copies not older than 6 months). Joint Ventures / Consortia entities must submit a consolidated B-BBEE certificate from SANAS-Accredited verification agency in order to qualify for points for their B-BBEE status level as an incorporated entity. Sworn affidavits for joint ventures will not be considered.
7	CSD	Central Supplier Database Registration
8	Proposed Project Organogram	Proposed Project Organogram
9	Tax Clearance certificate	Submission of valid Tax compliance status form (PIN)

Notes:

- Bidders are required to score minimum points of 70 for Functionality stated in Bid data.**
- Bidders who fail to meet the required minimum number of points for functionality stated in the Bid data will not be evaluated further.**
- Bidders who fail to submit information as per the returnable schedules will not be allocated points.**

EVALUATION SCHEDULE: CLIENT REFERENCES

The Bidder shall provide details of his performance on each of the previous projects listed in the "Similar Relevant Experience" returnable schedule. Client References" scorecards will be completed by each of the respective Clients for the projects listed in the "Similar Relevant Experience" returnable schedule. Forms not signed, stamped and completed by the client will result in no allocation of points (zero points).

The following are to be completed by the Client:

PROJECT 1: Name & Scope –

Client Department:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Program management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of materials					
Labour relations					

Any other remarks to be considered necessary to assist in evaluation of the contractor?

.....

Name of Client Representative:

Designation:

Telephone:

Client Signature:.....

Date:

Stamp

EVALUATION SCHEDULE: CLIENT REFERENCES

The Bidder shall provide details of his performance on each of the previous projects listed in the “Similar Relevant Experience” returnable schedule. Client References” scorecards will be completed by each of the respective Clients for the projects listed in the “Similar Relevant Experience” returnable schedule. Forms not signed, stamped and completed by the client will result in no allocation of points (zero points).

The following are to be completed by the Client:

PROJECT 2: Name & Scope –

Client Department:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Program management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of materials					
Labour relations					

Any other remarks to be considered necessary to assist in evaluation of the contractor?

.....

Name of Client Representative:

Designation:

Telephone:

Client Signature: **Date:**

Stamp

EVALUATION SCHEDULE: CLIENT REFERENCES

The Bidder shall provide details of his performance on each of the previous projects listed in the "Similar Relevant Experience" returnable schedule. Client References" scorecards will be completed by each of the respective Clients for the projects listed in the "Similar Relevant Experience" returnable schedule. Forms not signed, stamped and completed by the client will result in no allocation of points (zero points).

The following are to be completed by the Client:

PROJECT 3: Name & Scope –

Client Department:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Program management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of materials					
Labour relations					

Any other remarks to be considered necessary to assist in evaluation of the contractor?

.....

Name of Client Representative:

Designation:

Telephone:

Client Signature: **Date:**

Stamp

EVALUATION SCHEDULE: CLIENT REFERENCES

The Bidder shall provide details of his performance on each of the previous projects listed in the “Similar Relevant Experience” returnable schedule. Client References” scorecards will be completed by each of the respective Clients for the projects listed in the “Similar Relevant Experience” returnable schedule. Forms not signed, stamped and completed by the client will result in no allocation of points (zero points).

The following are to be completed by the Client:

PROJECT 4: Name & Scope –

Client Department:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Program management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of materials					
Labour relations					

Any other remarks to be considered necessary to assist in evaluation of the contractor?

.....

Name of Client Representative:

Designation:

Telephone:

Client Signature: **Date:**

Stamp

EVALUATION SCHEDULE: CLIENT REFERENCES

The Bidder shall provide details of his performance on each of the previous projects listed in the “Similar Relevant Experience” returnable schedule. Client References” scorecards will be completed by each of the respective Clients for the projects listed in the “Similar Relevant Experience” returnable schedule. Forms not signed, stamped and completed by the client will result in no allocation of points (zero points).

The following are to be completed by the Client

PROJECT 5: Name & Scope –

Client Department:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Program management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Procurement of materials					
Labour relations					

Any other remarks to be considered necessary to assist in evaluation of the contractor?

.....

Name of Client Representative:

Designation:

Telephone:

Client Signature: **Date:**

Stamp

EVALUATION SCHEDULE: SIMILAR PROJECT EXPERIENCE

The Bidder shall provide details of his performance on each of the previous relevant projects. Bidders must provide/attach appointment letter and Completion certification in a form of **Practical** or **Final completion** certificate listed under the “**Similar Project Experience**” returnable schedule below.

Failure to complete the table below will result in no points allocated. **No “see attached” will be accepted**

LIST THE <u>FIVE</u> SIMILAR PROJECTS EXPERIENCE COMPLETED BY YOUR FIRM IN THE LAST TEN (10) YEARS			
Name of Project Completed and Scope of work	Name of Project Manager & Telephone no.	Name of Client & Telephone no.	Value of Project
Project 1:			
Project 2:			
Project 3:			
Project 4:			
Project 5:			

C1.1 Form of Offer and Acceptance Offer

Construction of Grade R at Bubesi Junior Secondary School.

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

.....

.....

R..... (in figures)

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

Signature Date

Name Identity number

Capacity

for the tenderer

(Name and
.....

address of
organization)
.....

Name and
signature
of witness
.....

NOTE: Failure of a Bidder to complete and sign this part of the tender form (offer) in full including witnessing will invalidate the tender. Any blank spaces left will invalidate this offer.

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

The terms of the contract, are contained in:

- Part C1: Agreements and contract data, (which includes this agreement)
- Part C2: Pricing data
- Part C3: Scope of work.
- Part C4: Site information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

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

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

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five working days of the date of such receipt notifies the employer in writing of

any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

Signature Date

Name Identity number

Capacity

for the
Employer INDEPENDENT DEVELOPMENT TRUST
IDT Eastern Cape Office
Palm Square Business Park, Silverwood House, Beacon Bay
EAST LONDON
5200

Name and
signature
of witness Date

Schedule of Deviations

1 Subject

Details

.....

.....

.....

2 Subject

Details

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

3 Subject

.....
Details

4 Subject

.....
Details

5 Subject

.....
Details

By the duly authorized representatives signing this agreement, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation,

clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

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

INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (INDEPENDENT DEVELOPMENT TRUST (IDT))							
BID NUMBER:	DOEEC/03/2023/2024	CLOSING DATE: 20 June 2023		CLOSING TIME:	11:00		
DESCRIPTION	Construction of Grade R at Bubesi Junior Secondary School						
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)							
Independent Development Trust							
Palm Square Business Centre, Silverwood House							
Bonza Bay Road, Beacon Bay							
East London							
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO				TECHNICAL ENQUIRIES MAY BE DIRECTED TO:			
CONTACT PERSON	Nomnikelo Dyasi			CONTACT PERSON	Nakisai Takaindisa		
TELEPHONE NUMBER	043 711 6000			TELEPHONE NUMBER	039 032 0003/ 039 251 0476		
FACSIMILE NUMBER				FACSIMILE NUMBER	0867685414		
E-MAIL ADDRESS	nomnikelod@idt.org.za			E-MAIL ADDRESS	naki@vhbassociates.co.za		
SUPPLIER INFORMATION							
NAME OF BIDDER							
POSTAL ADDRESS							
STREET ADDRESS							
TELEPHONE NUMBER	CODE			NUMBER			
CELLPHONE NUMBER							
FACSIMILE NUMBER	CODE			NUMBER			
E-MAIL ADDRESS							
VAT REGISTRATION NUMBER							
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA		
SBD 6.1 REQUIREMENT MUST BE COMPLIED TO CLAIM POINTS ON SPECIFIC GOALS							
I. ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]		II. ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?		☐ Yes ☐ No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]		
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS							
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?					☐ YES ☐ NO		
DOES THE ENTITY HAVE A BRANCH IN THE RSA?					☐ YES ☐ NO		
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?					☐ YES ☐ NO		

DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?

☐ YES ☐ NO

IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?

☐ YES ☐ NO

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

PART B TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

.....

CAPACITY UNDER WHICH THIS BID IS SIGNED:

.....

(Proof of authority must be submitted e.g. company resolution)

DATE:

.....

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Bid Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

- 2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise, employed by the state? **YES/NO**

- 2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

¹ The power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

.....
.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

.....
.....

3 DECLARATION

I, _____ the _____ undersigned,
(name)..... in
submitting the accompanying bid, do hereby make the following statements
that I certify to be true and complete in every respect:

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the

institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

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

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

..... Signature	 Date
..... Position	 Name of bidder

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

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all Bids invited. It contains general information and serves as a claim form for preference points for specific goals.

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

1. GENERAL CONDITIONS

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

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

1.2 **To be completed by the organ of state**

(delete whichever is not applicable for this Bid).

- a) The applicable preference point system for this Bid is the 80/20 preference point system.
- b) 80/20 preference point system will be applicable in this Bid.
The lowest/ highest acceptable Bid will be used to determine the accurate system once Bids are received.

1.3 Points for this Bid (even in the case of a Bid for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this Bid are allocated as follows:

	POINTS	
PRICE	90	80
SPECIFIC GOALS	10	20
TARGETED GROUP		
Women	3	6
Youth	3	6
People with Disabilities	2	4
Black	2	4
Total points for Price and SPECIFIC GOALS	100	100

- 1.5 Failure on the part of a Bidder to submit proof or documentation required in terms of this Bid to claim points for specific goals with the Bid, will be interpreted to mean that preference points for specific goals are not claimed.
- 1.6 The organ of state reserves the right to require of a Bidder, either before a Bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) **“bid”**
means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive Bidding process or any other method envisaged in legislation;
- (b) **“price”** means an amount of money tendered for goods or services, and

includes all applicable taxes less all unconditional discounts;

- (c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) **“Bid for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

80/20	or	90/10	
$P_s = 80 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$	or	$P_s = 90 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$	

Where

P_s = Points scored for price of Bid under consideration

P_t = Price of Bid under consideration

P_{min} = Price of lowest acceptable Bid

3.1. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.1.1. POINTS AWARDED FOR PRICE

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

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \\ \mathbf{Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)} & \mathbf{or} & \mathbf{Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)} \end{array}$$

Where

- Ps = Points scored for price of Bid under consideration
- Pt = Price of Bid under consideration
- Pmax = Price of highest acceptable Bid

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the Bid. For the purposes of this Bid the Bidder will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this Bid:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the Bid documents, stipulate in the case of—
- (a) an invitation for Bid for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable Bid will be used to determine the applicable preference point system; or
 - (b) any other invitation for Bid, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable Bid will be used to determine the applicable preference point system,

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

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

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to Bidders: The Bider must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this Bid	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the Bider)	Number of points claimed (80/20 system) (To be completed by the Bider)
Women	3	6		
Youth	3	6		
People with Disabilities	2	4		
Black	2	4		

Source Documents to be submitted with the Bid or RFQ

*CIPC Document (Company Registration Document will be required for verification (CIPC DOC))

*Woman (Originally Certified ID Document)

*Youth (Originally Certified ID Document)

*People with Disability (Letter from the Dr. Confirming the Disability)

*Black Ownership (Originally Certified ID Document)

BID

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T1.1

Part T1: Bidding procedures

Bid Notice and Invitation to Bid

BID No: DOEEC/03/2023/2024

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:
.....

4.5. TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the Bidding process;

- (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
- (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
- (d) recommend that the Bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
- (e) forward the matter for criminal prosecution, if deemed

..... SIGNATURE(S) OF TENDERER(S)	
SURNAME AND NAME:	
DATE:	
ADDRESS:	
	

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

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

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

1. General Conditions

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

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

Where

x is the imported content in Rand

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

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) on the date of advertisement of the bid as indicated in paragraph 3.1 below.

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

1.6 A bid may be disqualified if –

(a) this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation; and

2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

3.

Item	Description of Service	Stipulated Threshold	Minimum
A	Roof Sheetting	100%	
B	Reinforcing bars	100%	
C	Window Frames	100%	
D	Door Frames	100%	
E	Gutters and Downpipes	100%	
F	Wire Products	100%	
G	Fasteners	100%	
H	School Furniture	100%	

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

(Tick applicable box)

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

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

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

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

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

BID

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T1.1

Part T1: Bidding procedures

Bid Notice and Invitation to Bid

BID No: DOEEC/03/2023/2024

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

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

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

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

IN RESPECT OF BID NO.

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

.....
NB

1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thdti.gov.za/industrialdevelopment/ip.jsp>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),

do hereby declare, in my capacity as

of(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:

- (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (ii) the declaration templates have been audited and certified to be correct.

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

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

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above. The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

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

SIGNATURE: _____

DATE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____

(C1)	Bid No.	DOEEC/03/2023/2024
(C2)	Bid description:	BUBESI JSS
(C3)	Designated product(s)	Local Steel products
(C4)	Bid Authority: IDT	
(C5)	Bidding Entity name:	
(C6)	Bid Exchange Rate:	Pula
(C7)	Specified local content %	

Pula	0	EU	0	GBP	0
------	---	----	---	-----	---

[illegible]

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1) Bid No. DOEEC/03/2023/2024
 (D2) Bid description: Construction of Grade R at Bubesi JSS
 (D3) Designated Products:
 (D4) Bid Authority:
 (D5) Bidding Entity name:
 (D6) Bid Exchange Rate:

Note: VAT to be excluded from all calculations

Pula

EU R 9.00

GBP R 12.00

A. Exempted imported content

Calculation of imported content										Summary	
Bid item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Bid Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)
										0	
										0	
(D19) Total exempt imported value										R	-
This total must correspond with Annex C - C 21											

B. Imported directly by the Bidder

Calculation of imported content										Summary	
Bid item no's	Description of imported content	Unit of measure	Overseas Supplier	Foreign currency value as per Commercial Invoice	Bid Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Total imported value
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	(D31)
										0	
(D32) Total imported value by Bid										R	-

C. Imported by a 3rd party and supplied to the Bid

Calculation of imported content										Summary	
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Bid Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)
										0	
										0	
(D45) Total imported value by 3rd party										R	0

D. Other foreign currency payments

Calculation of foreign currency payments					Summary of payments	
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Bid Rate of Exchange	Local value of payments	
(D46)	(D47)	(D48)	(D49)	(D50)	(D51)	
(D52) Total of foreign currency payments declared by bidder and/or 3rd party						

Signature of Bidder from Annex B

(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above R 0

This total must correspond with Annex C - C 23

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1) Bid No. DOEEC/03/2023/2024
 (E2) Bidder description: Construction of Grade R at Bubesi JSS
 (E3) Designated products:
 (E4) Bid Authority:
 (E5) Bidding Entity name:

Note: VAT to be excluded from all calculations

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
	(E9) Total local products (Goods, Services and Works)	R	-

(E10) **Manpower costs** Bidder's R -

(E11) **Factory overheads** (Rental, depreciation & amortisation, utility costs, consumables etc.) R -

(E12) **Administration overheads and mark-up** (Marketing, insurance, financing, interest etc.) R -

(E13) Total local content R -

This total must correspond with Annex C - C24

Signature of Bidder from Annex B

Date: _____

B1.2 Project Shedule

Project Start Date		A		
		02-Oct-22		
B1.2 (a) Site preparation and fencing				
Item No.	Description of activity	Start Date	Finish Date	No. of Calendar days
		B	C	D
1				
2				
3				
B1.2 (b) Construction of new school facility				
Item No.	Description	Start Date	Finish Date	No. of Calender days
		E	F	G
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
B1.2 (c) Finishing				
Item No.	Description of activity	Start Date	Finish Date	No. of Calendar days
		H	I	J
22	Commissioning of Services; water, sewer, electricity and HAND OVER			
B1.2 (d) Summary: Project Duration				
	Project Start Date	Project Finish / Hand Over Date (P)	Total Number of Calendar Days (I - A)	
	A	I	K	
	02-Oct-22			

Record of Addenda to Bid documents

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

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Attach additional pages if more space is required.

Signed

Date

Name

Position

Identity
number

Bidder

This section must be completed in full and aligned to attachments, organogram submitted failure to do so will result in no allocation of points

CURRICULUM VITAE OF KEY PERSONNEL (COMPULSORY)

(CVs and Certified Qualifications that are not older than 6 months are required only for site agent and contract or project manager).

CV FOR CONTRACT OR PROJECT MANAGER

Name:	Date of birth:
Profession:	Nationality:
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	Years with firm:
<u>Employment Record:</u>	
<u>Experience Record Pertinent to Required service:</u>	

Certification:

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

SIGNATURE: IDENTITY NUMBER:

(of person authorised to sign on behalf of the Bider)

DATE:.....

CV FOR SITE AGENT

Name:	Date of birth:
Profession:	Nationality:
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	Years with firm:
<u>Employment Record:</u>	
<u>Experience Record Pertinent to Required service:</u>	

Certification:

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

.....
SIGNATURE OF THE INCUMBANT IN THE SCHEDULE

.....
DATE

.....
INCUMBANT'S IDENTITY NUMBER

INDEPENDENT DEVELOPMENT TRUST

C1.2 Contract Data for BID NO: DOEEC/03/2023/2024

The Conditions of Contract are clauses 1 to 41 of the **JBCC Series 2000 Principal Building Agreement (Edition 4.1 March 2005)** published by the Joint Building Contracts Committee.

Copies of these conditions of contract may be obtained from the Association of South African Quantity Surveyors (011-3154140), Master Builders Association (011-205-9000; 057-3526269) South African Association of Consulting Engineers (011-4632022) or South African Institute of Architects (051-4474909; 011-4860684; 053-8312014;)

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

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

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

Clause	Additions, deletions and alterations
1.1	Replace the following definitions in DEFINITIONS AND INTERPRETATIONS with the following wording: AGREEMENT means the agreement arising from the signing of the Form of Offer and Acceptance by the parties. BILLS OF QUANTITIES means the document drawn up in accordance with the Pricing Instructions contained in the Pricing Data. CONSTRUCTION PERIOD means the period commencing on the date of site hand over and ending on the date of practical completion. CONTRACT DOCUMENTS means the Agreement and all documents referenced therein. CONTRACT DRAWINGS means the drawings listed in the Scope of Work. CONTRACT SUM means the total of prices in the Form of Offer and Acceptance. SCHEDULE means the variables listed in the Contract Data. CORRUPT PRACTICE means the offering, giving, receiving and 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 Bider, and includes collusive practice among bidders (prior to or after the Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the Bider of the benefits of free and open competition. INTEREST means the interest rates applicable to 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). 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 expense 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 duly given when: Delete sub-clause 1.6.4
3.5	Delete sub-clause 3.5
3.6	Delete sub-clause 3.6.
3.7	Add to 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 at all times.

3.9 Delete sub-clause 3.9

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 32.6.3; 34.3; 34.4 and 38.5.8 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.

9 Clause 9.0 is amended by adding Clause 9.1.4:

The **contractor** indemnifies and holds harmless the **employer** against all liability, losses, claims, damages, penalties, actions, proceedings or judgments (collectively referred to as "Losses") arising from any infringement of letters, patent design, trademark, name, copyright or other protected rights in respect of any machine, plant, work, materials, thing, system or method of using, fixing, working or arrangement used or fixed or supplied by the **contractor**, but such indemnity shall not cover any use of the equipment of part thereof otherwise than in accordance with the provisions of the specification. All payments and royalties payable in one sum or by installments or otherwise shall be included by the **contractor** in the price and shall be paid by him to those to whom they may be payable. The **contractor** shall reimburse the **employer** for all legal and other costs and expenses, including without limitation attorney's fees on attorney-client scale incurred by the **employer** in connection with investigation, defending or settling any Losses in connection with pending or threatening litigation in which the **employer** is a party.

10.5 Add the following as 10.5:

Damage to the works

(a) Without 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 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 expected 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 negligence 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

property 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 negligence 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 therefore 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 obtain adequate insurance and will remain adequately insured or insured to the specific limit stated in the contract 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 which 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 hold harmless the **employer** against any damage to and/or destruction of the **works** consequent upon a catastrophic ground movement as mentioned above. The **contractor** shall 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, 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 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 construction.

- 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 **commencement 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 subsequent 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 on indivisible whole.
- 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 date of acceptance of the Bid.
- 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
- 20.1.3 No clause.
- 21 Replace sub-clauses 21.1.2 to 21.1.4 and 21.2 to 21.6 with the following:
- The **contractor** and **principal agent** shall appoint a **selected subcontractor** in accordance with the provisions of the Scope of Work.
- 29 Clause 29.0 is amended by: -
- i) The addition of the following clauses: -
- Clause 29.9
"Revision to the date for **practical completion** shall only be considered when work on the critical path of the agreed programme for the works is delayed."
- ii) Clause 29.10 – Acceleration
- Clause 29.10.1
Irrespective of whether or not the **principal agent** rules that the **contractor** is entitled to an extension of time or a revision of the date for **practical completion**, the **principal agent** shall nevertheless, at any time, be entitled to instruct the **contractor** in writing to accelerate the progress of the remaining **works** to ensure that the **works** are completed by the original date for **practical completion** or revised date as the case may be.
- Clause 29.10.2
Upon receipt of such instruction, the **contractor** shall take all necessary steps to ensure that the **works** are completed timeously including the provision by him of additional resources, plant, manpower, etc. and the working overtime or additional overtime beyond that contemplated at the time of Bid (at all times adhering to the regulations and requirements of all authorities) and by all other adequate and proper means and methods. The **contractor** shall prove that such steps are being taken if called upon to do so.
- Clause 29.10.3
The **contractor's** entitlement to compensation arising out of or in respect of any revision to the date for **practical completion** that may have been granted by the **principal agent** or alternatively where the **principal agent** has instructed the **contractor** to accelerate, shall be adjudicated strictly in terms of clause 32.
- 30.1 Replace reference to 36.3 at end of sentence with 36.0
- 31.12 Delete "Payment shall be subject to the **employer** giving the **contractor** a **tax** invoice for the amount due."

- 32.5.1 Add the following to the end of each of these clauses: "... due to no fault of the **contractor**."
- 32.5.4
- 32.5.7
- 32.12 Delete sub-clause
- 34.2 Add # next to 34.2
- 34.13 Replace "seven (7) **calendar days**" with "thirty-one (31) **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 The **contractor's** refusal or neglect to comply strictly with any of the conditions of contract.
- 36.1.4 The **contractor's** estate being sequestrated, liquidated or surrendered in terms of the insolvency laws in force with the Republic of South Africa.
- 36.1.5 The **contractor**, in the judgment of the **employer**, has engaged in **corrupt** or **fraudulent practices** in competing for or in executing the contract.
- 36.3 Replace "**principal agent**" with "**employer**".
- 37.3.5 Replace "ninety (90)" with "one hundred and twenty (120)".
- 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 a report."
- 1.1 Delete in the Substitute Provisions (41.0 State Clauses) clause 41.1.3 the definitions for
- (41.1.3) **CONSTRUCTION PERIOD** and **INTEREST**. Sub-clause 1.1 definitions will apply (see contract data)
- 10.1 Delete in the Substitute Provisions (41.0 State Clauses) clauses 10.1, 10.2 and 10.4 so that the
- 10.2 provisions of sub-clauses 10.1, 10.2 and 10.4 of the non-**state** clauses will apply to the **state**.
- 10.4
- (41.0)
- 11.1 Delete in the Substitute Provisions (41.0 State Clauses) clause 11.1 so that the provisions of clause
- (41.0) 11.1 of the non-**state** clause will apply to the **state**.
- 12.1 Delete in the Substitute Provisions (41.0 State Clauses) clause 12.1 so that the provisions of clause
- (41.0) 12.1 of the non-**state** clause will apply to the **state** and replace "**contractor**" in clause 10.1 in the Substitute Provisions (41.0 State Clauses) with "The party responsible in terms of 12.1"
- 12.2 Amend the first part of the first sentence in clause 12.2 of the Substitute Provisions (41.0 State
- (41.0) Clauses) to read "Where the **contractor** is responsible for insurances, the **contractor** shall"
- 31.11.1 Delete in the Substitute Provisions (41.0 State Clauses) sub-clauses 31.11.1 and 31.11.2 so that the
- 31.11.2 provisions of sub-clause 31.11.1 of the non-**state** clause will apply to the **state**.
- (41.0)
- 36.7 Add in the Substitute Provisions (41.0 State Clauses) as clauses 36.7, 37.5 and 39.5, the following:
- 37.5 Notwithstanding any clause to the contrary, on cancellation of this agreement either by the **employer**
- 39.5 or the **contractor**, or for any reason whatsoever, the **contractor** shall on written instruction,
- (41.0) discontinue with the **works** on a stated date and withdraw himself from the **site**. The contractor shall not be entitled to refuse to withdraw from the **works** on the grounds of any lien or right of retention or on the grounds of any other right whatsoever.
- 40.2.1 Delete in the Substitute Provisions (41.0 State Clauses) clauses 40.2.1, 40.2.2, 40.3, 40.4, 40.5 and
- 40.2.2 40.6 and replace with the following:
- 40.3
- 40.4 40.1 Should any dispute between the **employer**, his **agents** or **principal agent** on the one hand
- 40.5 and the contractors on the other arise out of this **agreement**, such dispute shall be referred to
- 40.6 adjudication.

(41.0)

- 40.2 Adjudication shall be conducted in accordance with the edition of the JBCC Rules for Adjudication current at the time when the dispute is declared. The party, which raises the dispute, shall select three adjudicators from the panel of adjudicators published by the South African Institution of Civil Engineering or Association of Arbitrators (Southern Africa), determine their hourly fees and confirm that these adjudicators are available to adjudicate the dispute in question. The other party shall then select within 7 days one of the three nominated adjudicators, failing which the chairman for the time being of the Association of Arbitrators (Southern Africa) shall nominate an adjudicator. The **adjudicator** shall be appointed in terms of the Adjudicators Agreement set out in C1.4.
- 40.3 If provided in the **schedule**, a dispute shall be finally settled by a single Arbitrator to be agreed on between the parties or, failing such agreement within 28 days after referring the dispute to Arbitration, an Arbitrator nominated by the chairman for the time being of the Association of Arbitrators (Southern Africa). Any such reference shall be deemed to be a submission to the arbitration of a single arbitrator in terms of the Arbitration Act (Act No 42 of 1965, as amended), or any legislation passed in substitution thereof. In the absence of any other agreed procedure, the arbitration shall take place in accordance with the Rules for the Conduct of Arbitrations issued by the Association of Arbitrators (Southern Africa) which are current at the time of the referral to arbitration. The Arbitrator shall, in his award, set out the facts and the provisions of the contract on which his award is based.
- 40.4 If the **schedule** provides for court proceedings to finally resolve disputes, disputes shall be determined by court proceedings.

The additions to the JBCC Principal Agreement are:

Clause	Additions	
A1	A1.0	Labour intensive component of the works
	A1.1	Payment of labor-intensive component of the works. Payment for works identified in the Scope of Work as being labor-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.
	A1.2	Applicable labour laws The Ministerial Determination, Special Public Works Programme, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° 35310 04 May 2012, as reproduced below, shall apply to works described in the Scope of Work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.
	1	Introduction
	1.1	This document contains the standard terms and conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.
	1.2	In this document – (a) “department” means any department of the State, implementing agent or contractor; (b) “employer” means any department, implementing agency or contractor that hires workers to work in elementary occupations on a SPWP; (c) “worker” means any person working in an elementary occupation on a SPWP; (d) “elementary occupation” means any occupation involving unskilled or semi-skilled work; (e) “management” means any person employed by a department or implementing agency to administer or execute an SPWP; (f) “task” means a fixed quantity of work; (g) “task-based work” means work in which a worker is paid a fixed rate for performing a task; (h) “task-rated worker” means a worker paid on the basis of the number of tasks completed (i) “time-rated worker” means a worker paid on the basis of the length of time worked.
	2	Terms of Work
	2.1	Workers are employed on a temporary basis or contract basis.
	3	Normal Hours of Work
	3.1	An employer may not set tasks or hours of work that require a worker to work– (a) more than forty hours in any week; (b) on more than five days in any week; and (c) for more than eight hours on any day.
	3.2	An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
	4	Meal Breaks
	4.1	A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
	4.2	An employer and worker may agree on longer meal breaks.
	4.3	A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a

		worker is relieved of his or her duties during the meal break.
	4.4	A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.
	5	Special Conditions for Security Guards
	5.1	A security guard may work up to 55 hours per week and up to eleven hours per day.
	5.2	A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.
	6	Daily Rest Period
		Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.
	7	Weekly Rest Period
		Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").
	8	Sick Leave
	8.1	Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
	8.2	A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.
	8.3	A worker may accumulate a maximum of twelve days' sick leave in a year.
	8.4	Accumulated sick-leave may not be transferred from one contract to another contract.
	8.5	An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
	8.6	An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
	8.7	An employer must pay a worker sick pay on the worker's usual payday.
	8.8	Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
		(a) absent from work for more than two consecutive days; or (b) absent from work on more than two occasions in any eight-week period.
	8.9	A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorized to issue medical certificates indicating the duration and reason for incapacity.
	8.10	A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.
	9	Maternity Leave
	9.1	A worker may take up to four consecutive months' unpaid maternity leave.
	9.2	A worker is not entitled to any payment or employment-related benefits during maternity leave.
	9.3	A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
	9.4	A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.
	9.5	A worker may begin maternity leave –
		(a) four weeks before the expected date of birth; or

		(b) on an earlier date – (i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or (ii) if agreed to between employer and worker; or (c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.
	9.6	A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.
	10	Family responsibility leave
	10.1	Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -
		(a) when the employee's child is born; (b) when the employee's child is sick; (c) in the event of a death of – (i) the employee's spouse or life partner; (ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.
	11	Statement of Conditions
	11.1	An employer must give a worker a statement containing the following details at the start of employment – (a) the employer's name and address and the name of the SPWP; (b) the tasks or job that the worker is to perform; and (c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract; (d) the worker's rate of pay and how this is to be calculated; (e) the training that the worker will receive during the SPWP.
	11.2	An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
	11.3	An employer must supply each worker with a copy of these conditions of employment.
	12	Keeping records
	12.1	Every employer must keep a written record of at least the following –
		(a) the worker's name and position; (b) in the case of a task-rated worker, the number of tasks completed by the worker; (c) in the case of a time-rated worker, the time worked by the worker; (d) payments made to each worker.
	12.2	The employer must keep this record for a period of at least three years after the completion of the SPWP.
	13	Payment
	13.1	An employer must pay all wages at least monthly in cash or by cheque or into a bank account.
	13.2	A worker may not be paid less than the minimum wage rate of R185.52 per day or per task. This will be adjusted annually on the 1 st of November in line with inflation (available CPI as provided by Stats SA six (6) weeks before implementation)
	13.3	A task-rated worker will only be paid for tasks that have been completed.
	13.4	An employer must pay a task-rated worker within five weeks of the work being completed

		and the work having been approved by the manager or the contractor having submitted an invoice to the employer.
	13.5	A time-rated worker will be paid at the end of each month.
	13.6	Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
	13.7	Payment in cash or by cheque must take place –
		(a) at the workplace or at a place agreed to by the worker; (b) during the worker's working hours or within fifteen minutes of the start or finish of work; (c) in a sealed envelope which becomes the property of the worker.
	13.8	An employer must give a worker the following information in writing –
		(a) the period for which payment is made; (b) the numbers of tasks completed or hours worked; (c) the worker's earnings; (d) any money deducted from the payment; (e) the actual amount paid to the worker.
	13.9	If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.
	13.10	If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.
	14	Deductions
	14.1	An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
	14.2	An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
	14.3	An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.
	14.4	An employer may not require or allow a worker to –
		(a) repay any payment except an overpayment previously made by the employer by mistake; (b) state that the worker received a greater amount of money than the employer actually paid to the worker; or (c) pay the employer or any other person for having been employed.
	15	Health and Safety
	15.1	Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
	15.2	A worker must –
		(a) work in a way that does not endanger his/her health and safety or that of any other person; (b) obey any health and safety instruction; (c) obey all health and safety rules of the SPWP; (d) use any personal protective equipment or clothing issued by the employer; (e) report any accident, near-miss incident or dangerous behavior by another person to their employer or manager.
	16	Compensation for Injuries and Diseases
	16.1	It is the responsibility of the employers (other than a contractor) to arrange for all persons

		employed to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
	16.2	A worker must report any work-related injury or occupational disease to their employer or manager.
	16.3	The employer must report the accident or disease to the Compensation Commissioner.
	16.4	An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.
	17	Termination
	17.1	The employer may terminate the employment of a worker for good cause after following a fair procedure.
	17.2	A worker will not receive severance pay on termination.
	17.3	A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.
	17.4	A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.
	17.5	A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.
	18	Certificate of Service
	18.1	On termination of employment, a worker is entitled to a certificate stating-
		(a) the worker's full name; (b) the name and address of the employer; (c) (d) the work performed by the worker; (e) any training received by the worker as part of the SPWP; (f) the period for which the worker worked on the SPWP; (g) any other information agreed on by the employer and worker.
A2	A2.0	Mandatory Sub-Contracting (Only for projects above R 30 Million)
	A2.1	The Contractor must sub-contract 30% of the work to Domestic Sub-Contractors. The Sub-Contractors shall have a CIDB grading.
		The Contractor shall, directly after appointment and without delay, enter into domestic sub-contracts with the Domestic Sub-Contractors and forward a copy of these agreements to the Principal Agent. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.
		The Contractor will be responsible for all assistance and training required by the Sub-Contractor/s to complete the Project successfully. Irrespective of the mandatory sub-contracting requirement of this contract, the Contractor will at all times be the responsible party in accordance with the conditions of contract.
A3		
A4	A4.0	Attendance to Domestic Sub-Contractors in terms of clauses A2 above
	A4.1	The attendance of to the Domestic Sub-Contractor appointed in terms of clauses A2 above shall be priced under the relevant specific preliminaries item in the Preliminaries Section of the Bills of Quantities.

A5	A5.0	
	A5.1	
A6	A6.0	Expanded Public Works Programme
	A6.1	The Contractor will be required to employ staff which satisfies the EPWP requirements as per the Guidelines for the implementation of labor-intensive infrastructure projects.

Part 1: Contract Data Completed by the Employer

Clause	Item and data
1.2	The Employer is THE INDEPENDENT DEVELOPMENT TRUST The address of the Employer is: Palm Square Business Park, Silverwood House, Beacon Bay, 5200 Telephone: 043 -711 6000 Facsimile: Address (physical): IDT East London, Palm Square Business Park, Silverwood House, Beacon Bay, 5200 Address (Postal): Palm Square Business Park, Silverwood House, Beacon Bay, 5200
5.1	The Principal Agent is VHB ASSOCIATES Telephone: 039 032 0003 Facsimile: 086 577 7713 Address (physical): 48 Bisset Street, Port Shepstone , 4240
5.2	Agent (1) is MAXFIELD QS Agent's service: Quantity Surveying Services Telephone: 078 111 7370 Facsimile: 086 238 8489 Address (physical): 5 Canno Street Fort Gale Mthatha 5100
5.3	Agent (2) is LEKO ENGINEERING Agent's service: CIVIL AND STRUCTURAL ENGINEERING Telephone: 074 531 0037 Facsimile: Address (physical): 63 LEEDS ROAD, MTHATHA

5.4

Agent (3) is: MXN ELECTRICAL ENGINEERING

Agent's service: ELECTRICAL ENGINEERING

Telephone: 087 702 4198

Facsimile: 043 722 5339

Address 24 Botha Road, Selborne, East London

1.1	The Works comprises of the Construction of Grade R Classroom Block (1 x classroom, 1 x store room, 1 x kitchen overall approximate size 108 square meters). Undercover play area (approximate size 16 square meters). Undercover sand pit (approximately size 12 square meters). VIP toilet block (3 x Pit Toilet) .Site works generally comprising of bulk earthworks, open walkways, concrete aprons, storm water channels, rainwater tanks on bases, 1 x elevated rainwater tank on stand, jungle gym, security fencing all round GRADE R and school perimeter and entrance structure. New building to have full electrical installation
1.1	THE SITE IS LOCATED AT BUBESI JUNIOR SECONDARY SCHOOL, MATATIELE, ALFRED NZO DISTRICT, EASTERN CAPE PROVINCE
1.1 22.2	The Works or installations to be undertaken by direct contractors comprises Grade R Classroom Block (1 x classroom, 1 x store room, 1 x kitchen overall approximate size 108 square meters). Undercover play area (approximate size 16 square meters). Undercover sand pit (approximately size 12 square meters). VIP toilet block (3 x Pit Toilet) .Site works generally comprising of bulk earthworks, open walkways, concrete aprons, storm water channels, rainwater tanks on bases, 1 x elevated rainwater tank on stand, jungle gym, security fencing all round GRADE R and school perimeter and entrance structure. New building to have full electrical installation
41.0 31.11.2 11.2	The Employer is an organ of State • The interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999) will apply.
31.4.2 26.1.2	• Lateral support insurance is to be effected by the contractor • Payment will be made for materials and goods • Extended defects liability period will apply to the following elements: NOT APPLICABLE
15.2.1	Possession of the site is to be given on the date in the schedule providing the employer with construction guarantees in accordance with the provisions of 14.0.
15.3	The period for the commencement of the works after the contractor takes possession of the site is ten (10) working days. For the works as a whole: The date for practical completion is 13 months after contractual commencement date The penalty per calendar day is 0.025 per R100 of the contract value
1.2	The law applicable to the agreement shall be that of the Republic of South Africa.
10.1; 10.2 and 12.1	Contract insurance is to be effected by the contractor .
10.1 10.2 12.1	Contract works insurance is to be effected by the contractor for a sum not less than the contract sum plus 20% with a deductible in an amount that the contractor deems appropriate.
10.1 10.2 12.1	Supplementary insurance is required. Such insurance shall comprise a Coupon Policy for Special Risks issued by the South African Special Risk Insurance Association.
11.1, 12.1	Public liability insurance to be effected by the contractor for an amount of R10,000,000.00 with a deductible in an amount as determined by the contractor's insurance company.

- 11.2, 12.1 Support insurance to be effected by the **contractor** for the sum of **NOT APPLICABLE** with a deductible in an amount that the **contractor** deems appropriate.
- 3.3, 15.1.3, 31.16.2 A waiver of the **contractor's** lien or right of continuing possession is not required.
- 3.7 Three copies of the construction documents are to be supplied to the **contractor** free of charge.
- 3.4 JBCC Engineering General Conditions are not to be included in the contract document.
- 31.5.3 The contract value is to be adjusted using CPAP indices. The base month for the application of CPAP is the month of the closing of the Bid and the following alternative indices are applicable:
- 31.3 There is no latest day of the month for the issue of an interim payment certificate.
- 14.5 The employer will not provide advanced payments against an advanced payment guarantee.
- 14.2 and 14.4 The **construction guarantee** is to be a fixed guarantee in an amount of 10% of the contract sum and payment reduction
- 40.0 Dispute resolution shall be by adjudication
or
~~Dispute determinations shall be by arbitration~~

Part 2: Contract Data completed by the Contractor

Clause Item and data

- 1.2 The name of the Contractor is.
- The address of the contractor is:
- Telephone:
- Facsimile:
- Address (physical):
-
-
- Address (postal):
-
-

INDEPENDENT DEVELOPMENT TRUST

C1.3 Construction Guarantee

GUARANTOR DETAILS AND DEFINITIONS

Guarantor means

...

Physical address

...

.....

...

Guarantor's signatory 1 Capacity

....

Guarantor's signatory 1 Capacity

....

Employer means **The Independent Development Trust**

Contractor means

...

Agent means **VHB Associates**

Works means **Bid No: DOEEC/03/2023/2024– Construction of Grade R at Bubesi Junior Secondary School ,**

Site means **The designated site to be shown to the contractor is at BUBESI JUNIOR SECONDARY SCHOOL, MATATIELE, ALFRED NZO DISTRICT, EASTERN CAPE PROVINCE**

Agreement means **the JBCC Series 2000 Principal Agreement Edition 4.1 Code 2101 March 2005**

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

Amount in figures R

Amount in words

(Rand)

Guaranteed Sum means the maximum aggregate amount of R

...

Amount in words
 (Rand)

1 The Guarantor's liability shall be limited to the amount of the Guaranteed Sum as follows:

GUARANTOR'S LIABILITY	PERIOD OF LIABILITY
Maximum Guaranteed Sum (not exceeding 10 % of the contract sum) in the amount of: (Rands) (R)	From and including the date of issue of this Construction Guarantee and up to and including the date of the only practical completion certificate or the last practical completion certificate where there are sections, upon which this Construction Guarantee shall expire.

2 The Guarantor hereby acknowledges that:

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

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

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

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

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

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

4 Subject to the Guarantor's maximum liability referred to in clause 1, the Guarantor undertakes to pay the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Guarantee stating that:

4.1 The Agreement has been cancelled due to the Contractor's default and that the Guarantee is called up in terms of clause 4. The demand shall enclose a copy of the notice of cancellation; or

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

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

- 6 Where the Guarantor is a registered insurer and has made payment in terms of clause 4, the Employer shall upon the date of issue of the final payment certificate submit an expense account to the Guarantor showing how all monies received in terms of the Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 7 Payment by the Guarantor in terms of clause 3 or 4 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer deems fit and the Guarantor shall not have the right to claim his release from this Guarantee on account of any conduct alleged to be prejudicial to the Guarantor
- 9 The Guarantor chooses the physical address as stated above for all purposes in connection herewith.
- 10 This Guarantee is neither negotiable nor transferable and shall expire in terms of clause 1, or payment in full of the Guaranteed Sum or on the Guarantee expiry date, whichever is the earlier, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired
- 11 This Guarantee, with the required demand notices in terms of clauses 3 or 4, shall be regarded as a liquid document for the purpose of obtaining a court order.
- 12 Where this Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at Date

...

Guarantor's
Signatory 1 Guarantor's
Signatory 2

...

Identity number Identity number

....

Witness 1 Witness 2

...

Guarantor's seal or stamp

INDEPENDENT DEVELOPMENT TRUST

ADJUDICATOR'S AGREEMENT

This agreement is made on the day of between:
..... (name of company / organisation)
of
..... (address)
and
..... (name of company / organisation)
of
..... (address)
(the Parties) and
..... (name)
of
..... (address)
(the Adjudicator).

Disputes or differences may arise/have arisen* between the Parties under a Contract dated
... and known as

and these disputes or differences shall be/have been* referred to adjudication in accordance with the JBCC 2000 Adjudication Rules, (hereinafter called "the Procedure") and the Adjudicator may be or has been requested to act.

* Delete as necessary

IT IS NOW AGREED as follows:

- 1 The rights and obligations of the Adjudicator and the Parties shall be as set out in the JBCC 2000 Adjudication Rules.
- 2 The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the JBCC 2000 Adjudication Rules..
- 3 The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses as set out in the Contract Data.
- 4 The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.
- 5 The Adjudicator shall inform the Parties if he intends to destroy the documents which have been sent to him in relation to the adjudication and he shall retain documents for a further period at the request of either Party.

SIGNED by: _____

Name: _____

ID: _____

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

SIGNED by: _____

Name: _____

ID: _____

who warrants that he / she is
duly authorized to sign for
and behalf of the second
Party in the presence of

SIGNED by: _____

Name: _____

ID: _____

the Adjudicator in the
presence of

Witness _____

Name: _____

Address: _____

Witness: _____

Name _____

Address: _____

Witness: _____

Name: _____

Address: _____

Date: _____

Date: _____

Date: _____

Contract Data

1	The Adjudicator shall be paid at the hourly rate of R. in respect of all time spent upon, or in connection with, the adjudication including time spent traveling.
2	The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restricted to: (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs. (b) Telegrams, telex, faxes, and telephone calls. (c) Postage and similar delivery charges. (d) Travelling, hotel expenses and other similar disbursements. (e) Room charges. (f) Charges for legal or technical advice obtained in accordance with the Procedure.
3	The Adjudicator shall be paid an appointment fee of R. This fee shall become payable in equal amounts by each Party within 14 days of the appointment of the Adjudicator, subject to an Invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties.
4	The Adjudicator is/is not* currently registered for VAT.
5	Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice.
6	All payments, other than the appointment fee (item 3) shall become due 31 days after receipt of invoice,

* Delete as necessary

INDEPENDENT DEVELOPMENT TRUST

C2.1 Pricing Instructions

- 1 The Bills of Quantities have been drawn up in accordance with the Standard System of Measuring Building Work (as amended) published and issued by the Association of South African Quantity Surveyors (Sixth Edition (Revised)), 1999. Where applicable the:
 - a) Civil engineering work has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardized Specifications for Civil Engineering Works.
 - b) Mechanical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Refrigeration, Air-Conditioning and Ventilation Installations, published by the South African Association of Quantity Surveyors, July 1990).
 - c) electrical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Electrical Work, published by the South African Association of Quantity Surveyors, (July, 2005).
- 2 The agreement is based on the JBCC Series 2000 Principal Building Agreement, prepared by the Joint Building Contracts Committee, Edition 4.1, and March 2005. The additions, deletions and alterations to the JBCC Principal Building Agreement as well as the contract specific variables are as stated in the Contract Data. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.
- 3 Preliminary and general requirements are based on the various parts of the JBCC Series 2000 Preliminaries as prepared by the Joint Building Contracts Committee, Edition 4.1, and March 2005. The additions, deletions and alterations to the various parts of the JBCC Series 2000 Preliminaries as well as the contract specific variables are as stated in the Specification Data in the Scope of Work. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.
- 4 It will be assumed that prices included in the Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for Bids. (Refer to www.stanza.org.za or www.iso.org for information on standards).
- 5 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.
- 6 The drawings listed in the Scope of Works used for the setting up of these Bills of Quantities are kept by the quantity surveyor and can be viewed at any time during office hours up until the completion of the works.
- 7 Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted.

- 8 The rates contained in the Bills of Quantities will apply irrespective of the final quantities of the different classes and kinds of work actually executed.
- 9 Rates for work of similar description occurring in different sections of the Bills of Quantities shall be identical.
- 10 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.
- 11 Where any item is not relevant to this specific contract, such item is marked N/A (signifying “not applicable”)
- 12 The Contract Data and the standard form of contract referenced therein must be studied for the full extent and meaning of each and every clause set out in Section 1 (Preliminary and General) of the Bills of Quantities
- 13 The Bills of Quantities is not intended for the ordering of materials. Any ordering of materials, based on the Bills of Quantities, is at the Contractor’s risk.
- 14 The amount of the Preliminary and General Section to be included in each monthly payment certificate shall be assessed as an amount prorated to the value of the work duly executed in the same ratio as the preliminaries bears to the total of prices excluding any contingency sum, the amount for the Preliminary and General Section and any amount in respect of contract price adjustment provided for in the contract.
- 15 Where the initial contract period is extended, the monthly charge shall be calculated on the basis as set out in 14 but taking into account the revised period for completing the works.
- 16 The amount or items of the Preliminary and General Section shall be adjusted to take account of the theoretical financial effect which changes in time or value (or both) have on this section. Such adjustments shall be based on adjustments in the following categories as recorded in the Bills of Quantities:
 - a) an amount which is not to be varied, namely Fixed (F)
 - b) an amount which is to be varied in proportion to the contract value, namely Value Related (V); and
 - c) an amount which is to be varied in proportion to the contract period as compared to the initial construction period excluding revisions to the construction period for which no adjustment to the contractor is not entitled to in terms of the contract, namely Time Related (T).
- 17 Where no provision is made in the Bills of Quantities to indicate which of the three categories in 12 apply or where no selection is made, the adjustments shall be based on the following breakdown:
 - a) 10 percent is Fixed;
 - b) 15 percent if Value Related
 - c) 75 percent is Time Related.
- 18 The adjustment of the Preliminary and General Section shall apply notwithstanding the actual employment of resources in the execution of the works. The contract value used for the adjustment of the Preliminary and General Section shall exclude any contingency sum, the amount for the Preliminary and General Section and any amount in respect of contract price adjustment provided for in the contract. Adjustments in respect of any staged or sectional completion shall be prorated to the value of each section.

- | | |
|----|--|
| 19 | All work is to be constructed using labor-intensive methods. The use of plant to provide such works, other than plant specifically provided for in the scope of works, is a variation order to the contract |
| 20 | Payment for items, which are designated to be constructed under labour-intensively, will not be made unless they are constructed using labor-intensive methods. Any unauthorized use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment. |
| 21 | The Bidder is to acquaint himself as to the specific requirements of this Bid as contained in additional clauses A1 to A6 to the JBCC Principal Agreement as incorporated in the Contract Data. These clauses may be priced under the relevant Preliminaries items in SECTION C: SPECIFIC PRELIMINARIES of the Preliminaries Bill. No claim will be entertained due to the failure of the Bidder to allow for these requirements |

INDEPENDENT DEVELOPMENT TRUST

C2.2 Bills of Quantities

PART A

SECTION NO. 1
PRELIMINARIES

SECTION NO. 1
PRELIMINARIES

SECTION 1

PRELIMINARIES

MEANING OF TERMS "TENDER / TENDERER"

Any reference to the words "Tender" or "Tenderer" herein and/or in any other documentation shall be construed to have the same meaning as the words "Bid" or "Bidder"

PRELIMINARIES

The JBCC Preliminaries Code 2103, May 2005 edition for use with the JBCC Principal Building Agreement Edition 4.1 Code 2101, March 2005 is taken to be incorporated herein. The tenderer is deemed to have referred to these documents for the full intent and meaning of each clause. These clauses are referred to by number and heading only. Where standard clauses or options are not applicable to the contract such modifications or corrections as are necessary are given under each relevant clause. Where an item is not relevant to this specific contract such item is marked "N/A" signifying "Not Applicable"

PRICING OF PRELIMINARIES

Should Option A, as set out in clause B10.3.1 hereinafter be used for the adjustment of preliminaries then each item priced is to be allocated to one or more of the three categories Fixed, Value Related or Time Related and the respective amounts entered in the spaces provided under each item

Items not priced in these Preliminaries shall be deemed to be included elsewhere in these Bills of Quantities

SECTION A: JBCC PRINCIPAL BUILDING AGREEMENT

DEFINITIONS

DEFINITIONS AND INTERPRETATION

Clause 1.0

Clause 1.1 Definition of "**Commencement Date**" is added:

"**COMMENCEMENT DATE**" means the date that the **agreement**, made in terms of the Form of Offer and Acceptance, comes into effect

Clause 1.1 Definition of "**Construction Guarantee**" is amended by replacing it with the following:

"**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**

Clause 1.1 Definition of "**Construction Period**" is amended by replacing it with the following:

"**CONSTRUCTION PERIOD**" means the **period commencing on the commencement date** and ending on the date of **practical completion**

Clause 1.1 Definition of "**Corrupt Practice**" is added:

"**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.

Clause 1.1 Definition of "**Fraudulent Practice**" is added:

"**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 or 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

Clause 1.1 Definition of "**Interest**" is amended by replacing it with the following:

"**INTEREST**" means 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)**

Clause 1.1 Definition of "**Principal Agent**" is amended by replacing it with the following:

A1.0

"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

Clause 1.1 Definition of **"Security"** is amended by replacing it with the following:

"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 expense or loss

Clause 1.6 is amended by replacing the words "prepaid registered post, telefax or e-mail" with "prepaid registered post or telefax"

Clause 1.6.4 is amended by replacing it with the following:

No clause

Fixed: _____ Value related: _____ Time related: _____
Item

OBJECTIVE AND PREPARATION

A2.0 OFFER, ACCEPTANCE AND PERFORMANCE

Clause 2.0

Fixed: _____ Value related: _____ Time related: _____
Item

A3.0 DOCUMENTS

Clause 3.0

Clause 3.2.1 is amended by replacing "14.1" with "14.0"

Clause 3.7 is amended by the addition of the following:

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 at all times

Clause 3.10 is amended by replacing the second reference to "principal agent" with the word "employer"

Fixed: _____ Value related: _____ Time related: _____
Item

A4.0 DESIGN RESPONSIBILITY

Clause 4.0

Clause 4.3 is amended by replacing it with the following:

No clause

Fixed: _____ Value related: _____ Time related: _____
Item

A5.0 EMPLOYER'S AGENTS

Clause 5.0

Clause 5.1.2 is amended to include clauses 32.6.3, 34.3, 34.4 and 38.5.8

Fixed: _____ Value related: _____ Time related: _____
Item

A6.0 SITE REPRESENTATIVE

Clause 6.0

Fixed: _____ Value related: _____ Time related: _____
Item

A7.0	COMPLIANCE WITH REGULATIONS Clause 7.0 Note: A separate clause has been included in Section C: Specific Preliminaries of the bills of quantities / lump sum document for the contractor to have the opportunity to price for all the requirements of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification Fixed: _____ Value related: _____ Time related: _____ Item
A8.0	WORKS RISK Clause 8.0 Fixed: _____ Value related: _____ Time related: _____ Item
A9.0	INDEMNITIES Clause 9.0 Fixed: _____ Value related: _____ Time related: _____ Item
A10.0	WORKS INSURANCES Clause 10.0 Clause 10.0 is amended by the addition of the following clauses: 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 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 negligence 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 negligence 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 obtain adequate insurance and will remain adequately insured or insured to the specific limit stated in the contract 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 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** shall 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 **commencement 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

Fixed: _____ Value related: _____ Time related: _____
Item

A11.0 LIABILITY INSURANCES

Clause 11.0

Fixed: _____ Value related: _____ Time related: _____
Item

A12.0 EFFECTING INSURANCES

Clause 12.0

Fixed: _____ Value related: _____ Time related: _____
Item

A13.0 No clause

SECURITY

Clause 14.0

Clauses 14.1 - 14.8 are amended by replacing them with the following:

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 **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

Fixed: _____ Value related: _____ Time related: _____

Item

EXECUTION

PREPARATION FOR AND EXECUTION OF THE WORKS

Clause 15.0

Clause 15.1.1 is amended by replacing it with:

No clause

Clause 15.1.2 is amended by replacing it with:

The **security** selected in terms of 14.0

Clause 15.1 is amended by the addition of the following clause:

15.1.4 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**

Clause 15.2.1 is amended by replacing it with the following clause:

Give the **contractor** possession of the **site** within ten (10) **working days** of the **contractor** complying with the terms of 15.1.4

Fixed: _____ Value related: _____ Time related: _____

Item

A15.0

A16.0	ACCESS TO THE WORKS Clause 16.0 Fixed: _____ Value related: _____ Time related: _____ Item
A17.0	CONTRACT INSTRUCTIONS Clause 17.0 Clause 17.1.11 is amended by deleting the words "and the appointment of nominated and selected subcontractors" Fixed: _____ Value related: _____ Time related: _____ Item
A18.0	SETTING OUT OF THE WORKS Clause 18.0 Fixed: _____ Value related: _____ Time related: _____ Item
A19.0	ASSIGNMENT Clause 19.0 Fixed: _____ Value related: _____ Time related: _____ Item
A20.0	NOMINATED SUBCONTRACTORS Clause 20.0 Clause 20.1.3 is amended by replacing it with the following: No clause Note: See item B9.1 hereinafter for adjustment of attendance on nominated subcontractors executing work allowed for under provisional sums Fixed: _____ Value related: _____ Time related: _____ Item
A21.0	SELECTED SUBCONTRACTORS Clause 21.0 Clause 21 is amended by replacing it with: No clause Fixed: _____ Value related: _____ Time related: _____ Item
A22.0	EMPLOYER'S DIRECT CONTRACTORS Clause 22.0 Fixed: _____ Value related: _____ Time related: _____ Item
A23.0	CONTRACTOR'S DOMESTIC SUBCONTRACTORS Clause 23.0 Fixed: _____ Value related: _____ Time related: _____ Item

SECTION 1: PRELIMINARIES (SECTION A)
Collection

Each Item Carried to

	COMPLETION	
A24.0	PRACTICAL COMPLETION	
	Clause 24.0	
	Fixed: _____ Value related: _____ Time related: _____	Item
A25.0	WORKS COMPLETION	
	Clause 25.0	
	Fixed: _____ Value related: _____ Time related: _____	Item
A26.0	FINAL COMPLETION	
	Clause 26.0	
	Clause 25.1.2 is amended by inserting "F" next to 25.1.2	
	Fixed: _____ Value related: _____ Time related: _____	Item
A27.0	LATENT DEFECTS LIABILITY PERIOD	
	Clause 27.0	
	Fixed: _____ Value related: _____ Time related: _____	Item
A28.0	SECTIONAL COMPLETION	
	Clause 28.0	
	Fixed: _____ Value related: _____ Time related: _____	Item
A29.0	REVISION OF DATE FOR PRACTICAL COMPLETION	
	Clause 29.0	
	Clause 29.2.5 is amended by replacing it with:	
	No clause	
	Fixed: _____ Value related: _____ Time related: _____	Item
A30.0	PENALTY FOR NON-COMPLETION	
	Clause 30.0	
	Fixed: _____ Value related: _____ Time related: _____	Item
	PAYMENT	
A31.0	INTERIM PAYMENT TO THE CONTRACTOR	
	Clause 31.0	
	Clause 31.5.2 is amended by replacing "14.7.1" with "14.0"	
	Clause 31.8 is amended by replacing it with the following two alternative clauses:	
	Alternative A	
	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 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**

Alternative B

31.8(B) Where **security** as a payment reduction in terms 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 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**

Clause 31.12 is amended by deleting the following:

Payment shall be subject to the **employer** giving the **contractor** a tax invoice for the amount due

Fixed: _____ Value related: _____ Time related: _____
Item

A32.0 **ADJUSTMENT TO THE CONTRACT VALUE**

Clause 32.0

Clauses 32.5.1, 32.5.4 and 32.5.7 are amended by the addition of the following at the end of the sentence:

"due to no fault of the **contractor**"

Fixed: _____ Value related: _____ Time related: _____
Item

A33.0 **RECOVERY OF EXPENSE AND LOSS**

Clause 33.0

Fixed: _____ Value related: _____ Time related: _____
Item

A34.0 **FINAL ACCOUNT AND FINAL PAYMENT**

Clause 34.0

Clause 34.1 is amended by removing "#" next to 34.1

Clause 34.2 is amended by inserting "#" next to 34.2

Clause 34.8 is amended by deleting the words "where **security** as a fixed **construction guarantee** in terms of 14.4 has been selected or where payment reduction has been applied in terms of 14.7.1"

Clause 34.13 is amended by replacing "seven (7) **calendar days**" with "twenty-one (21) **calendar days**" and deleting the words "subject to the **employer** giving the **contractor** a tax invoice for the amount due"

Fixed: _____ Value related: _____ Time related: _____
Item

A35.0	PAYMENT TO OTHER PARTIES Clause 35.0 Fixed: _____ Value related: _____ Time related: _____ Item CANCELLATION
A36.0	CANCELLATION BY EMPLOYER – CONTRACTOR'S DEFAULT Clause 36.0 Clause 36.1 is amended by the addition of the following clauses: 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 Clause 36.3 is amended by removing the reference to "No clause" and replacing the words "principal agent" with "employer" Clause 36.0 is amended by the addition of the following clause: 36.7 Notwithstanding any clause to the contrary, on cancellation of this agreement either by the employer or the contractor; or for any reason whatsoever, the contractor shall on written instruction, discontinue with the works on a 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 Fixed: _____ Value related: _____ Time related: _____ Item
A37.0	CANCELLATION BY EMPLOYER – LOSS AND DAMAGE Clause 37.0 Clause 37.3.5 is amended by replacing "ninety (90)" with "one-hundred and twenty (120)" Clause 37.0 is amended by the addition of the following clause: 37.5 Notwithstanding any clause to the contrary, on cancellation of this agreement either by the employer or the contractor; or for any reason whatsoever, the contractor shall on written instruction, discontinue with the works on a 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 Fixed: _____ Value related: _____ Time related: _____ Item
A38.0	CANCELLATION BY CONTRACTOR – EMPLOYER'S DEFAULT Clause 38.0 Clause 38.5.4 is amended by replacing "ninety (90)" with "one-hundred and twenty (120)" Clause 38.0 is amended by the addition of the following clause: 38.7 Notwithstanding any clause to the contrary, on cancellation of this agreement either by the employer or the contractor; or for any reason whatsoever, the contractor shall on written instruction, discontinue with the works on a 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 Fixed: _____ Value related: _____ Time related: _____ Item

A39.0	CANCELLATION – CESSATION OF THE WORKS Clause 39.0 Clause 39.3.5 is amended by the addition of the following at the end of the sentence: “within one hundred and twenty (120) working days of completion of such a report” Fixed: _____ Value related: _____ Time related: _____ Item
	DISPUTE
A40.0	DISPUTE SETTLEMENT Clause 40.0 Clause 40.2.2 is amended by replacing “one (1) year” with “three (3) years” Clause 40.6 is amended by removing the reference to: No clause Clause 40.7.1 is amended by replacing “(10)” with “(15)” and by the addition of the following: 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 Fixed: _____ Value related: _____ Time related: _____ Item
	SUBSTITUTE PROVISIONS
A41.0	STATE CLAUSES Clause 41.0 Fixed: _____ Value related: _____ Time related: _____ Item
	CONTRACT VARIABLES
A42.0	THE SCHEDULE (DPW-04EC) Clause 42.0 Tenderers are referred to the Contract Data DPW-04(EC) for variables pertaining to this contract Fixed: _____ Value related: _____ Time related: _____ Item

SECTION B: JBCC PRELIMINARIES**B1.0 DEFINITIONS AND INTERPRETATION****B1.1 *Definitions and interpretation***

See also clause A1.0 of Section A for additional and/or amended definitions which shall apply equally to this Section

Fixed: _____ Value related: _____ Time related: _____
Item

B2.0 DOCUMENTS**B2.1 *Checking of documents***

Fixed: _____ Value related: _____ Time related: _____
Item

B2.2 *Provisional bills of quantities*

Fixed: _____ Value related: _____ Time related: _____
Item

B2.3 *Availability of construction documentation*

Fixed: _____ Value related: _____ Time related: _____
Item

B2.4 *Interests of agents*

Fixed: _____ Value related: _____ Time related: _____
Item

B2.5 *Priced documents*

Fixed: _____ Value related: _____ Time related: _____
Item

B2.6 *Tender submission*

Clause 2.6 is amended by replacing "JBCC Form of Tender" with "Form of Offer and Acceptance DPW-07(EC)"

Fixed: _____ Value related: _____ Time related: _____
Item

B3.0 THE SITE**B3.1 *Defined works area***

Fixed: _____ Value related: _____ Time related: _____
Item

B3.2 *Geotechnical investigation*

Fixed: _____ Value related: _____ Time related: _____
Item

B3.3 *Inspection of the site*

Fixed: _____ Value related: _____ Time related: _____
Item

B3.4 *Existing premises occupied*

Fixed: _____ Value related: _____ Time related: _____
Item

B3.5	Previous work – dimensional accuracy	Fixed: _____ Value related: _____ Time related: _____	Item
B3.6	Previous work – defects	Fixed: _____ Value related: _____ Time related: _____	Item
B3.7	Services – known	Fixed: _____ Value related: _____ Time related: _____	Item
B3.8	Services – unknown	Fixed: _____ Value related: _____ Time related: _____	Item
B3.9	Protection of trees	Fixed: _____ Value related: _____ Time related: _____	Item
B3.10	Articles of value	Fixed: _____ Value related: _____ Time related: _____	Item
B3.11	Inspection of adjoining properties	Fixed: _____ Value related: _____ Time related: _____	Item
B4.0	MANAGEMENT OF CONTRACT		
B4.1	Management of the works	Fixed: _____ Value related: _____ Time related: _____	Item
B4.2	Programme for the works	Fixed: _____ Value related: _____ Time related: _____	Item
B4.3	Progress meetings	Fixed: _____ Value related: _____ Time related: _____	Item
B4.4	Technical meetings	Fixed: _____ Value related: _____ Time related: _____	Item
B4.5	Labour and plant records	Fixed: _____ Value related: _____ Time related: _____	Item
	AND MANUFACTURERS' INSTRUCTIONS		
B5.0	SAMPLES, SHOP DRAWINGS		
B5.1	Samples of materials	Fixed: _____ Value related: _____ Time related: _____	Item
B5.2	Workmanship samples	Fixed: _____ Value related: _____ Time related: _____	Item

B5.3	Shop drawings	Fixed: _____ Value related: _____ Time related: _____	Item
B5.4	Compliance with manufacturers' instructions	Fixed: _____ Value related: _____ Time related: _____	Item
B6.0	TEMPORARY WORKS AND PLANT		
B6.1	Deposits and fees	Fixed: _____ Value related: _____ Time related: _____	Item
B6.2	Enclosure of the works	Fixed: _____ Value related: _____ Time related: _____	Item
B6.3	Advertising	Fixed: _____ Value related: _____ Time related: _____	Item
B6.4	Plant, equipment, sheds and offices	Fixed: _____ Value related: _____ Time related: _____	Item
B6.5	Main notice board	Fixed: _____ Value related: _____ Time related: _____	Item
B6.6	Subcontractors' notice board	Fixed: _____ Value related: _____ Time related: _____	Item
B7.0	TEMPORARY SERVICES		
B7.1	Location	Fixed: _____ Value related: _____ Time related: _____	Item
B7.2	Water	Fixed: _____ Value related: _____ Time related: _____	Item
B7.3	Electricity	Fixed: _____ Value related: _____ Time related: _____	Item
B7.4	Telecommunication facilities	Fixed: _____ Value related: _____ Time related: _____	Item
B7.5	Ablution facilities	Fixed: _____ Value related: _____ Time related: _____	Item
B8.0	PRIME COST AMOUNTS		
B8.1	Responsibility for prime cost amounts	Fixed: _____ Value related: _____ Time related: _____	Item

B9.0	ATTENDANCE ON N/S SUBCONTRACTORS			
B9.1	General attendance	Fixed: _____	Value related: _____	Time related: _____ Item
B9.2	Special attendance	Fixed: _____	Value related: _____	Time related: _____ Item
B9.3	Commissioning – fuel, water and electricity	Fixed: _____	Value related: _____	Time related: _____ Item
B10.0	FINANCIAL ASPECTS			
B10.1	Statutory taxes, duties and levies	Fixed: _____	Value related: _____	Time related: _____ Item
B10.2	Payment for preliminaries	Fixed: _____	Value related: _____	Time related: _____ Item
B10.3	Adjustment of preliminaries	B10.3.1 and B10.3.2 are amended by replacing "within fifteen (15) " with " _____ working days of taking possession of the site when submitting his priced bills of quantities / lump sum document"		
		Fixed: _____	Value related: _____	Time related: _____ Item
B10.4	Payment certificate cash flow	Fixed: _____	Value related: _____	Time related: _____ Item
B11.0	GENERAL			
B11.1	Protection of the works	Fixed: _____	Value related: _____	Time related: _____ Item
B11.2	Protection / isolation of existing / sectionally occupied works	Fixed: _____	Value related: _____	Time related: _____ Item
B11.3	Security of the works	Fixed: _____	Value related: _____	Time related: _____ Item
B11.4	Notice before covering work	Fixed: _____	Value related: _____	Time related: _____ Item
B11.5	Disturbance	Fixed: _____	Value related: _____	Time related: _____ Item
B11.6	Environmental disturbance	Fixed: _____	Value related: _____	Time related: _____ Item

B11.7	Works cleaning and clearing	Fixed: _____ Value related: _____ Time related: _____	Item
B11.8	Vermin	Fixed: _____ Value related: _____ Time related: _____	Item
B11.9	Overhand work	Fixed: _____ Value related: _____ Time related: _____	Item
B11.10	Instruction manuals and guarantees	Fixed: _____ Value related: _____ Time related: _____	Item
B11.11	As built information	Fixed: _____ Value related: _____ Time related: _____	Item
B11.12	Tenant installations	Fixed: _____ Value related: _____ Time related: _____	Item
B12.0	SCHEDULE OF VARIABLES		
B12.1	Schedule of variables	Fixed: _____ Value related: _____ Time related: _____	Item

This **schedule** contains all variables referred to in this document and is divided into pre-tender and post-tender categories. The pre-tender category must be completed in full and included in the tender documents. Both the pre-tender and post-tender categories form part of these **Preliminaries**. Spaces requiring information must be filled in, shown as "not applicable" or deleted and 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

12.1 PRE-TENDER INFORMATION

12.1.1 **Provisional bills of quantities**

[2.2] The quantities are provisional (yes/no)

12.1.2 **Availability of construction documentation**

[2.3] Construction documentation is complete (yes/no)

12.1.3 **Interests of agents**

[2.4] Details:

12.1.4 **Defined works area**

[3.1] Details:

12.1.5 **Geotechnical investigation**

[3.2] Details:

12.1.6 **Existing premises occupied**

[3.4] Specific requirements: _____

12.1.7 **Previous work dimensional accuracy**

[3.5] Details: _____

12.1.8 **Previous work defects**

[3.6]	Details:		
12.1.9 [3.7]	Services – known Details:		
12.1.10 [3.9]	Protection of trees Specific requirements:		
12.1.11 [3.11]	Inspection of adjoining properties Specific requirements:		
12.1.12 [6.2]	Enclosure of the works Specific requirements:		
12.1.13 [6.4.3]	Offices Specific requirements: The contractor shall provide, maintain and remove on completion of the works an office for the exclusive use of the principal agent , minimum size 4 x 3 x 3m high internally, suitably insulated and ventilated, provided with electric lighting and fitted with boarded floor, desk, chair, drawing stool, drawing board and lock-up drawers for drawings. The office shall be kept clean and fit for use at all times		
12.1.14 [6.5]	Main notice board Specific requirements: The contractor shall provide, erect where directed, maintain and remove on completion of the works a notice board size 3 x 3m as type Drawing GEN 063, constructed of suitable boarding with flat smooth surface and with edging bead 19mm thick round outer edges and projecting 12mm from face of boarding and rounded on front edge. The board shall be securely fixed to hoarding, where hoarding is provided, or fixed to and including a suitable supporting structure of timber or tubular posts and braces. The board is to be painted ivory white and the bead and 12mm wide dividing lines dark green. All wording shall be inscribed in dark green as per the coat of arms for SA. All wording shall be inscribed in dark green painted sans serif lettering		
12.1.15 [6.6]	notice board A notice board is required Specific requirements: Subcontractors'	(yes/no)	No
12.1.16 [7.2]	Water Option A (by contractor)	(yes/no)	Yes
	Option B (by employer free of charge)	(yes/no)	No
	Option C (by employer – metered)	(yes/no)	No
	–		
12.1.17 [7.3]	Electricity Option A (by contractor)	(yes/no)	Yes
	Option B (by employer – free of charge)	(yes/no)	No
	Option C (by employer – metered)	(yes/no)	No
12.1.18 [7.4]	Telecommunications Telephone	(yes/no)	Yes
	Facsimile	(yes/no)	Yes
	E-mail	(yes/no)	Yes
12.1.19 [7.5]	Ablution facilities Option A (by contractor)	(yes/no)	Yes
	Option B (by employer)	(yes/no)	No
12.1.20 [11.2]	Protection of existing/sectionally occupied works Protection is required	(yes/no)	Yes
12.1.21 [9.2]	Special attendance Subcontractor (1) details:		

S

SECTION 1: PRELIMINARIES (SECTION B)
Collection

Each Item Carried to

	Subcontractor (2) details:		
	Subcontractor (3) details:		
	Subcontractor (4) details:		
12.1.22 [11.1]	Protection of the works Specific requirements:		
12.1.23 [11.5]	Disturbance Specific requirements: The contractor shall keep the site, structures, etc well watered during operations to prevent dust and shall provide and erect and remove on completion of the works all necessary temporary dust screens all to the satisfaction of the principal agent		
12.1.24 [11.6]	Environmental disturbance Specific requirements:		
12.2	POST-TENDER INFORMATION		
12.2.1 [10.2]	Payment of preliminaries Option A (prorated)	(yes/no)	Yes
	Option B (calculated)	(yes/no)	No
12.2.2 [10.3]	Adjustment of preliminaries Option A (three categories)	(yes/no)	Yes
	Option B (detailed breakdown)	(yes/no)	No
12.2.3	Additional agreed preliminaries items Details:		

SECTION C: SPECIFIC PRELIMINARIES

Section C contains specific preliminary items which apply to this contract except where N/A (Not Applicable) appears against an item

C1.0	CONTRACT DRAWINGS <i>* Select relevant paragraph and delete whichever is not applicable depending on whether the contract is based on a bills of quantities or lump sum document</i> * The drawings issued with the tender documents do not comprise the complete set but serve as a guide only for tendering purposes and for indicating the scope of the work to enable the tenderer to acquaint himself with the nature and extent of the works and the manner in which they are to be executed * A full set of drawings is issued with the tender documents indicating the full scope of the work to enable the tenderer to acquaint himself with the nature and extent of the works and the manner in which they are to be executed Should any part of the drawings not be clearly understood by the tenderer he shall, before submitting his tender, obtain clarification in writing from the principal agent Fixed: _____ Value related: _____ Time related: _____ Item
C2.0	GENERAL PREAMBLES The document "Specification of Materials and Methods to be used (PW371)" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities / lump sum document and be referred to for the full descriptions of work to be done and materials to be used Fixed: _____ Value related: _____ Time related: _____ Item
C3.0	TRADE NAMES Wherever a trade name for any product has been described in the bills of quantities / lump sum document, the tenderer's attention is drawn to the fact that any other product of equal quality may be used subject to the written approval of the principal agent being obtained prior to the closing date for submission of tenders If prior written approval for an alternative product is not obtained, the product described shall be deemed to have been tendered for Fixed: _____ Value related: _____ Time related: _____ Item
C4.0	IMPORTED MATERIALS AND EQUIPMENT Where imported items are listed in the tender documents, the tenderer shall provide all the information called for, failing which the price of any such item, materials or equipment shall be excluded from currency fluctuations. (refer to Schedule of Imported Materials and Equipment DPW-23(EC) to be completed by tenderer) Notwithstanding any provisions elsewhere regarding the adjustment of contract prices, the price of any item, material or equipment listed in terms of this clause shall be excluded from the Contract Price Adjustment Provisions (if applicable) Fixed: _____ Value related: _____ Time related: _____ Item
C5.0	VIEWING THE SITE IN SECURITY AREAS The site is situated in a security area and the tenderer must arrange with the unit commander or other responsible officer to obtain permission to enter the site for tendering purposes Fixed: _____ Value related: _____ Time related: _____ Item

C6.0	COMMENCEMENT OF WORKS IN SECURITY AREAS As the works falls within a security area the contractor must give the unit commander or other responsible officer notice before commencement of the works. Should the contractor fail to make such arrangements, admission to the site may be fixed and any additional costs will be for the contractor's account Fixed: _____ Value related: _____ Time related: _____ Item
C7.0	ENTRANCE PERMITS TO SECURITY AREAS As the works falls within a security area the contractor shall obtain entrance permits for his personnel and workmen entering the area and shall comply with all regulations and instructions which may be issued from time to time regarding the protection of persons and property under the control of the Defence Force, Police or chief security officer Fixed: _____ Value related: _____ Time related: _____ Item
C8.0	SECURITY CHECK OF PERSONNEL The principal agent may require the contractor to have his personnel and workmen, or a certain number of them, security classified In the event of the principal agent requesting the removal of a person or persons from the works for security reasons, the contractor shall do so forthwith and shall thereafter ensure that such person or persons are denied access to the works and the site and/or to any document or information relating to the works Fixed: _____ Value related: _____ Time related: _____ Item
C9.0	PROHIBITION ON TAKING OF PHOTOGRAPHS In terms of article 119 of the Defence Act, 44 of 1957, it is prohibited to sketch or to take photographs of any military site or installation or any building or civil works thereon or to be in possession of a camera or other apparatus used for taking of photographs except when authorized thereto by or on behalf of the Minister The same prohibition is also applicable to all correctional institutions in terms of article 44.1(e) of the Correctional Services Act 8 of 1959 Fixed: _____ Value related: _____ Time related: _____ Item
C10.0	HIV/AIDS AWARENESS It is required of the contractor to thoroughly study the HIV/AIDS Specification (PW 1544) of the Department that must be read together with and is deemed to be incorporated under this Section of the bills of quantities / lump sum document. Provision for pricing of HIV/AIDS awareness is made under items C10.1 to C10.5 hereafter and it is explicitly pointed out that all requirements of the aforementioned specification are deemed to be priced hereunder, as the said items represent the only method of measurement and no additional items or extras to the contract in this regard shall be entertained The contractor must take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the principal agent, notwithstanding the provisions of clause A 31.0 of Section A or any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the contractor provides satisfactory proof of compliance. The contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment
C10.1	AWARENESS CHAMPION Selection, appointment, briefing and making available of an Awareness Champion including provision of all relevant services, all in accordance with the HIV/AIDS Specification Fixed: _____ Value related: _____ Time related: _____ Item
C10.2	AWARENESS WORKSHOPS Selection and appointment of a competent Service Provider approved by the principal agent, provision of a Service Provider Workshop Plan and a suitable venue, conducting of awareness workshops by means of traditional and/or modern multi-media techniques, including follow-up courses, making available all tuition material and performing assessment procedures, all in accordance with the HIV/AIDS Specification Fixed: _____ Value related: _____ Time related: _____ Item

C10.3	POSTERS, BOOKLETS, VIDEOS, ETC. Provision, displaying, maintaining and replacing when necessary of four plastic laminated posters, booklets and educational videos, etc. for the duration of the construction period, all in accordance with the HIV/AIDS Specification Fixed: _____ Value related: _____ Time related: _____ Item
C10.4	ACCESS TO CONDOMS Provision and maintenance of condom dispensers fixed in position, including male and female condoms, replenishing male and female condoms on a daily basis as required for the duration of the construction period, all in accordance with the HIV/AIDS Specification Fixed: _____ Value related: _____ Time related: _____ Item
C10.5	MONITORING Monitoring HIV/AIDS awareness of workers, providing the principal agent with access to information including making available all reports, thoroughly completed and reflecting the correct information, for the duration of the construction period and close out, all in accordance with the HIV/AIDS Specification Fixed: _____ Value related: _____ Time related: _____ Item
C11.0	OCCUPATIONAL HEALTH AND SAFETY ACT The contractor shall comply with all the requirements set out in the Construction Regulations, 2014 issued under the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) It is required of the contractor to thoroughly study the Health and Safety Specification that must be read together with and is deemed to be incorporated under this Section of the bills of quantities / lump sum document The contractor must take note that compliance with the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is compulsory. In the event of partial or total non-compliance, the principal agent, notwithstanding the provisions of clause A31.0 of Section A or any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the contractor provides satisfactory proof of compliance. The contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment Provision for pricing of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is made under this clause and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained Fixed: _____ Value related: _____ Time related: _____ Item

Note:

The contractor is to make his own assessment of quantities and requirements for items listed below based on the anticipated size of his workforce and price accordingly.

Plan And Obligations

C.11.1	Preparation of the Contractor's site specific Health and Safety Plan.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.2	Principal Contractor's initial obligations in respect of the Occupation Health and Safety Act and Construction Regulations.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.3	Principal Contractor's time related obligations in respect of the Occupation Health and Safety Act and Construction Regulations for the full contract duration.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
<u>Provision Of Personal Protective Equipment (PPE)</u>				
C.11.4	Reflective vests.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.5	Hard hats.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.6	Protective foot wear.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.7	Earplugs.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.8	Dust masks.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.9	Gloves.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.10	High visibility overalls to SARTSM Chapter 13 Level 3.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.11	Ear defenders SABS approved.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
<u>Officer, Medicals Training, Etc</u>				
C.11.12	Provision of full time/part-time Construction Health and Safety Officer.	Fixed: _____ Value related: _____ Time related: _____	Item	Included
C.11.13	Cost of medical certificate and medical surveillance	Fixed: _____ Value related: _____ Time related: _____	Item	Included
				Item Included

**SECTION 1: PRELIMINARIES (SECTION C)
Collection**

Each Item Carried to

C.11.14	Induction training, safety representative and first aider.	Fixed:_____ Value related:_____ Time related:_____	Item	Included
C.11.15	<u>Provision Of First Aid Boxes, Fire Extinguishers, Signage, Etc</u>			
	First aid boxes.	Fixed:_____ Value related:_____ Time related:_____	Item	Included
C.11.16	Fire extinguishers.	Fixed:_____ Value related:_____ Time related:_____	Item	Included
C.11.17	Safety signs boards, other relevant signage, wall charts, etc	Fixed:_____ Value related:_____ Time related:_____	Item	Included
C.11.18	<u>Noise Monitoring, Etc</u>			
	Noise monitoring.	Fixed:_____ Value related:_____ Time related:_____	Item	Included
C.11.19	Establishment of noise zones (plant).	Fixed:_____ Value related:_____ Time related:_____	Item	
C.11.20	Audiograms (personnel)	Fixed:_____ Value related:_____ Time related:_____	Item	
C.11.21	<u>Submissions</u>			
	Submissions of a Health and Safety File.	Fixed:_____ Value related:_____ Time related:_____	Item	Included
C.11.22	Submission of Close-out Report	Fixed:_____ Value related:_____ Time related:_____	Item	Included

**SECTION 1
PRELIMINARIES**

COLLECTION

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B11.1	Protection of the works	15	
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		Carried forward R	
SECTION 1: PRELIMINARIES: COLLECTION			June
2008			

[illegible]

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>GRADE R BLOCK</u>			
	<u>BILL NO. 1</u>			
	<u>FOUNDATIONS (PROVISIONAL)</u>			
	<u>TESTS (Work Group No. 110 Unless Otherwise Stated)</u>			
1	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	4	
	<u>EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)</u>			
	<u>Excavations</u>			
2	Excavate in earth to reduce levels under ground, not exceeding 2000mm deep.	m3	26	
3	Excavate in earth for surface trenches, not exceeding 2000mm deep.	m3	113	
4	Excavate in earth for bases, not exceeding 2000mm deep.	m3	1	
5	Extra over excavations in earth for excavation in soft rock.	m3	7	
6	Ditto in hard rock.	m3	3	
	<u>Sundries</u>			
7	Extra over all excavations for carting away from site surplus excavated material.	m3	141	
8	Risk of collapse to sides of excavations not exceeding 1500mm deep.	m2	318	
	Carried to Collection			R
	SECTION NO. 3			
	BILL NO. 1			
	FOUNDATIONS (PROVISIONAL)			

1	Keep the excavations free of water other than subterranean and seepage water.		Item		
	<u>Filling</u>				
2	Scarify surface of ground to a depth of 150mm and compact to 93% Mod AASHTO density.	m2	176		
3	150mm Compacted thickness G5 base course complying with SANS 1200 ME supplied by the Contractor and compacted to 98% Mod AASHTO density under solid floors.	m2	176		
4	25mm Layer of clean dry sand spread and levelled over filling to receive damp proof course (elsewhere measured) under floors, including SANS approved termite poison treatment.	m2	176		
5	Approved G5 filling, supplied by the Contractor compacted in multiple layers not exceeding 150mm thick to 95% Mod AASHTO density in backfilling to trenches, bases, etc.	m3	46		
	<u>CONCRETE (Work Group No. 110 Unless Otherwise Stated)</u>				
	<u>Plain Concrete 25MPa Of 12mm Stone</u>				
6	In filling to cavities of hollow piers.	m3	1		
7	In filling to cavities of hollow walls.	m3	5		
	<u>Plain Concrete 25MPa Of 19mm Stone</u>				
8	In footings cast against excavated surfaces.	m3	43		
9	In bases cast against excavated surfaces.	m3	1		
	<u>BRICKWORK (Work Group No. 116 Unless Otherwise Stated)</u>				
	<u>Brickwork In Burnt Clay NFP Bricks In Class II Mortar</u>				
10	Half brick wall.	m2	8		
11	One brick wall including ties.	m2	61		
12	270mm Hollow wall of two half brick thicknesses with 50mm cavity, including ties.	m2	96		
	Carried to Collection			R	
	SECTION NO. 3				
	BILL NO. 1				
	FOUNDATIONS (PROVISIONAL)				

1	270 x 270mm Attached brick pier formed of half brick thickness with 50 x 50mm void in centre filled in with cement concrete (concrete elsewhere measured).	m	2
<u>Brick Reinforcement</u>			
2	Galvanised high tensile wire welded fabric reinforcement 75mm wide and built into half brick wall and lintols, well lapped at angles and intersections.	m	2 345
3	Ditto 150mm wide.	m	709
<u>EXTERNAL FACINGS (Work Group No. 116 Unless Otherwise Stated)</u>			
Golden Wheat Travertine FBX (or similar approved) solid brick on sill ends			
4	Extra over ordinary brickwork for facing in stretcher bond and pointing.	m2	44
5	Brick on edge coping with bull-nose to recess in edge of concrete slab and pointing to all exposed sides.	m	81

Carried to Collection

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SECTION NO. 3
 BILL NO. 1
 FOUNDATIONS (PROVISIONAL)

SECTION NO. 3

BILL NO. 1

FOUNDATIONS (PROVISIONAL)

COLLECTION

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SECTION NO. 3

BILL NO. 1

FOUNDATIONS (PROVISIONAL)

Item No		Quantity	Rate	Amount
	<u>BILL NO. 2</u>			
	<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>			
	<u>(Work Group No. 110 Unless Otherwise Stated)</u>			
	<u>TESTS</u>			
1	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	5	
	<u>CONCRETE</u>			
	<u>Plain Concrete 25MPa Of 12mm Stone</u>			
2	In filling to cavities of hollow piers.	m3	1	
	<u>Reinforced Concrete 25 MPa Of 19mm Stone</u>			
3	In surface beds on waterproof sheeting.	m3	18	
	<u>Reinforced Concrete 30MPa Of 19mm Stone</u>			
4	In wall beams.	m3	5	
5	In serving hatch slab.	m3	1	
6	In verandah seating slab.	m3	1	
	<u>CONCRETE SUNDRIES</u>			
7	Steel float top of general horizontal and vertical concrete seating surfaces to a smooth even surface including adding a Sika or other approved dry shake cementitious colour surface hardener.	m2	4	
8	Steel float top of general horizontal and vertical concrete hatch slab to a smooth even surface including adding a Sika or other approved dry shake cementitious colour surface hardener.	m2	1	
	Carried to Collection			
	SECTION NO. 3			
	BILL NO. 2			
	CONCRETE, FORMWORK AND REINFORCEMENT			

R

1	Trowel verandah and gas cage store to a smooth surface in one operation with additional mortar as required and finishing off with a stipple roller to a non-skid finish to approval.	m2	68		
<u>EXPANSION JOINTS, ETC. (Work Group No. 111 Unless Otherwise Stated)</u>					
<u>Movement Joints</u>					
2	10mm Jointex joint filler not exceeding 300mm wide between brick and concrete surfaces.	m	355		
<u>FORMWORK (USE AND WASTE) TO CONCRETE (Work Group No. 111 Unless Otherwise Stated)</u>					
<u>Rough Formwork To</u>					
3	Sides of wall beams.	m2	34		
<u>Smooth Formwork To</u>					
4	Soffit of seating slabs with horsing not exceeding 1,5m high.	m2	4		
5	Soffit of serving hatch slab with horsing not exceeding 1,5m high. (Provisional) .	m2	1		
6	Edges, risers, ends and reveals not exceeding 300mm high or wide.	m	17		
7	Extra over on edges to form horizontal rounded bull nose to top edge of concrete seating and hatch slab.	m	17		
<u>Boxing In Rough Formwork To Form</u>					
8	250mm Wide x 120mm high horizontal recess to top edge of verandah surface bed, etc.	m	81		
<u>STEEL REINFORCEMENT (PROVISIONAL) (Work Group No. 114 Unless Otherwise Stated)</u>					
<u>Mild Steel Bar Reinforcement To Structural Concrete Work</u>					
9	10mm Diameter bars.	t	0.11		

Carried to Collection

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SECTION NO. 3
 BILL NO. 2
 CONCRETE, FORMWORK AND REINFORCEMENT

High Tensile Steel Bar Reinforcement To Structural Concrete Work

1	10mm Diameter bars.	t	0.16		
2	12mm Diameter bars.	t	0.42		
3	16mm Diameter bars.	t	0.32		
4	20mm Diameter bars.	t	0.05		

MESH REINFORCEMENT (PROVISIONAL) (Work Group No. 114 Unless Otherwise Stated)**Fabric Reinforcement To Concrete Work**

5	Welded high tensile steel fabric mesh reinforcement, Reference No. 245 (2,45kg/m ²) laid in concrete surface beds and slabs, including laps and spacer blocks (measured net).	m2	176		
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Carried to Collection**R**

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 BILL NO. 2
 CONCRETE, FORMWORK AND REINFORCEMENT

SECTION NO. 3

BILL NO. 2

CONCRETE, FORMWORK AND REINFORCEMENT

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BILL NO. 2

CONCRETE, FORMWORK AND REINFORCEMENT

Item No		Quantity	Rate	Amount
	<u>BILL NO. 3</u>			
	<u>MASONRY</u>			
	<u>(Work Group No. 116 Unless Otherwise Stated)</u>			
	<u>BRICKWORK</u>			
	<u>Brickwork In Burnt Clay NFP Bricks In Class II Mortar</u>			
1	Half brick wall.	m2	42	
2	Half brick wall in beam filling.	m2	13	
3	One brick wall including ties.	m2	44	
4	One brick wall above wall plate level, including ties.	m2	14	
5	270mm Hollow wall of two half brick thicknesses with 50mm cavity, including ties.	m2	97	
6	270mm Hollow wall of two half brick thicknesses with 50mm cavity above wall plate level, including ties.	m2	37	
7	270 x 270mm Attached brick pier formed of half brick thickness with 50 x 50mm void in centre filled in with cement concrete (concrete elsewhere measured).	m	9	
8	270 x 270mm Brick pier or column formed of half brick thickness with 50 x 50mm void in centre filled in with cement concrete (concrete elsewhere measured).	m	3	
	<u>Brickwork Sundries</u>			
9	Build 50mm cavity of cavity wall solid horizontally for two courses under window cills.	m	10	
10	Build 50mm cavity of cavity wall solid vertically for half brick width at opening reveals.	m	43	
11	Brick on edge sloping and projecting external cill 230mm wide, including cutting, etc.	m	11	
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	BILL NO. 3			
	MASONRY			

1	Cement mortar 3-1 splayed fillet 50mm wide and one course high in bottom of hollow wall to receive damp proof course.	m	152		
2	1,6mm Thick x 32mm wide x 500mm long galvanised hoop iron door frame cramp with one end twice screwed to back of frame and other end built into brickwork and turned up into joint.	No	24		
3	1,6mm Thick x 32mm wide x 1500mm long galvanised hoop iron truss tie with one end built 750mm deep into brickwork and other end wrapped over truss and spiked to roof timbers.	No	51		
<u>Brick Reinforcement</u>					
4	Galvanised high tensile wire welded fabric reinforcement 75mm wide and built into half brick wall and lintols, well lapped at angles and intersections.	m	1 107		
5	Ditto 150mm wide.	m	184		
<u>Precast Prestressed Vibrated Cement Concrete (30MPa) Lintols Including Moulds, Reinforcement, Propping, Etc.</u>					
6	Lintol 110mm wide x 75mm deep in lengths not exceeding 3000mm.	m	29		
7	Lintol 160mm wide x 75mm deep in lengths not exceeding 3000mm.	m	18		
<u>INTERNAL FACINGS</u>					
	Golden Wheat Travertine FBX (or similar approved) solid brick on sill ends				
8	Extra over ordinary brickwork for facing in stretcher bond and pointing with a square recessed joint.	m2	68		
<u>FIBRE REINFORCED CEMENT CILLS</u>					
<u>Nutec Or Other Approved High Density Fibre Cement Cills</u>					
9	15mm Thick x 150mm wide cill set flat and slightly projecting, with lugs under and bedded in mortar, all to manufacturer's specification.	m	10		
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MASONRY					

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MASONRY

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SECTION NO. 3

BILL NO. 3

MASONRY

Item No		Quantity	Rate	Amount
<u>BILL NO. 4</u>				
<u>WATERPROOFING</u>				
<u>(Work Group No. 120 Unless Otherwise Stated)</u>				
<u>DAMP PROOF SHEETING</u>				
<u>Damp Proof Sheeting To Walls And Floors</u>				
1	250 Micron thick green polyethylene damp proof sheeting laid under solid floors.	m2	176	
2	375 Micron thick black embossed polyethylene damp proof course on walls.	m2	96	
<u>JOINT SEALANTS</u>				
<u>Pointing</u>				
3	Sikaflex-Pro 2HP or other approved polyurethane sealant applied by means of a gun at junction of timber window and door frames.	m	22	
4	Sikaflex-Pro 2HP or other approved polyurethane sealant applied by means of a gun at junction of aluminium window and door frames.	m	128	
5	Rake out 10mm jointex expansion joint filler for a depth of 10mm, prime and point with polyurethane sealant.	m	355	
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SECTION NO. 3				
BILL NO. 4				
WATERPROOFING				

**Watertite Guttering Or Other Approved Seamless
Baked Enamel Prepainted Rolled Aluminium
Profiled Rainwater Goods And Accessories Of
Approved Colour Fixed In Strict Accordance With
The Manufacturer's Instructions**

1	150 x 125 x 0,8mm Ogee profile gutter fixed to fibre cement fascia with patented internal brackets at maximum 500mm centres.	m	61
2	Extra for external angle.	No	5
3	Extra for internal angle.	No	1
4	Extra for centre nozzle with outlet for 110mm diameter rainwater pipe.	No	4

**uPVC Rainwater Goods With Solvent Cement And
Clip-On Joints**

5	110mm Diameter rainwater pipe and fixing clear of walls with and including aluminium holderstraps at maximum 1000mm centres fixed to and including 144 x 144 x 19mm thick wrot meranti block with rounded corners four times plugged and brass screwed to wall.	m	12
6	Extra for shoe.	No	4
7	Extra for eaves offset 800mm projection.	No	4

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SECTION NO. 3
BILL NO. 5
ROOF COVERINGS, ETC.

SECTION NO. 3

BILL NO. 5

ROOF COVERINGS, ETC.

COLLECTION

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SECTION NO. 3

BILL NO. 5

ROOF COVERINGS, ETC.

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Item No		Quantity	Rate	Amount
	<u>BILL NO. 6</u>			
	<u>CARPENTRY AND JOINERY</u>			
	<u>(Work Group No. 126 Unless Otherwise Stated)</u>			
	<u>ROOF CONSTRUCTION</u>			
	<u>PREFABRICATED ROOF TRUSSES</u>			
	(a) Tenderers are referred to the detail roof plans issued with these Bills of Quantities. All the roof trusses are to be at a maximum of 1100mm centres and constructed for a 25 degree pitch unless otherwise stated. Truss dimensions have been measured to the overall roof plan size. (b) All the roof trusses to be designed and constructed with softwood structural timber to include for live loads, wind loads and to take a 0,8mm thick sheet metal roof covering on purlins and fibre cement or gypsum plasterboard ceilings with branderling. Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by CSIR approved patented galvanised metal spiked connectors, fixed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions. (c) Unless otherwise described all rafter feet are to extend approximately 910mm beyond the length of the tie beam, with ends wrot and twice splay cut. (d) The design, manufacture and transportation of the roof trusses, bracing, etc. shall be under the control of a registered Engineer and it shall be required from the manufacturer of the trusses to lodge a written guarantee that his construction has been designed by a qualified Structural Engineer and that he is in possession of a capability certificate issued by the Institute for Timber Construction and approved by the Representative/Agent. (e) The tenderers attention is drawn to the fact that the complete set of project drawings may be viewed at the offices of the Representative/Agent.			
	Carried to Collection		R	
	SECTION NO. 3			
	BILL NO. 6			
	CARPENTRY AND JOINERY			

(f) Erection must be carried out as described in The Erection and Bracing of Timber Roof Trusses published by the Truss Plate Association of South Africa Ltd. and the National Timber Research Institute, CSIR. A certificate of compliance must be submitted to the Representative/Agent on completion of the total roof construction by a Registered Structural Engineer representing the roof truss manufacturer's.

(g) Descriptions of roof trusses shall be deemed to include for design, manufacture, supply, hoisting and fixing in position, trimming ends, notching, etc. and for any temporary bracing.

Double Pitch Prefabricated Connector Plate Roof Trusses At 1100mm Maximum Centres With A Pitch Of 25 Degrees And Suitable For 0.80mm Thick IBR Sheet Roofing With 50 x 76mm Purlins At 1050mm Centres And 6mm Thick Claddit Nailed Up Ceilings With 38 x 50mm Brandering

- 1 Roof construction to suit rectangular shaped roof for grade R building, etc. size $\pm$ 16800mm long x 11000mm wide overall complete with 800mm eaves overhangs. (Hoisting $\pm$ 2890mm high).

No

1

- 2 Temporary and permanent bracing to suit the above roof truss designs.

Item

SUNDRY ROOF TIMBERS

Sawn Softwood

- | | | | |
|---|-----------------------------|---|-----|
| 3 | 38 x 114mm Wall plate. | m | 61 |
| 4 | 50 x 76mm Purlin. | m | 186 |
| 5 | 50 x 76mm Purlin to hips. | m | 93 |
| 6 | 50 x 76mm Purlin to valley. | m | 15 |

Sundries

- 7 Teco or other approved galvanised mild steel hurricane clip used at junction of timber trusses and purlins.

No

510

EAVES AND VERGES

Carried to Collection

R

SECTION NO. 3
BILL NO. 6
CARPENTRY AND JOINERY

<u>Everite Or Other Approved 6mm Fibre-Reinforced Cement Eaves And Verge Linings With PVC H-Profile Joining Strips (Work Group No. 129 Unless Otherwise Stated)</u>					
1	Sloping eaves soffit lining in approximately 800mm widths fixed to and including 38 x 50mm sawn Pine brandering at 450mm centres across sheets and along both edges, with brandering fixed to soffit of rafter overhang.	m	61		
<u>Pressed Fibre Reinforced Cement Fascia And Barge Board (Work Group No. 129 Unless Otherwise Stated)</u>					
2	12 x 225mm Pressed flat fascia, butt jointed with aluminium H-profile fascia joiners and twice drilled for and screwed to purlin and including 38 x 114mm Pine fixing cleat 114mm long fixed vertically to side of rafter feet at approximately 1100mm centres with two 38 x 50mm Pine fascia fixing runners to take fascia fixed to same.	m	61		
<u>SKIRTINGS</u>					
<u>Wrot Meranti</u>					
3	19 x 69mm Angle rounded skirting, ploughed at back and plugged to wall, with and including 19mm quadrant bead at junction with floor. (Provisional) .	m	65		
<u>DOORS, ETC.</u>					
<u>Wrot Meranti</u>					
4	44mm Two panel double door complete with raised and fielded board in lower door panels and opening for glazing (glazing elsewhere measured) in top door panels with and including glazing beads, size 1612 x 2032mm high overall, to be supplied and installed by specialist.	No	1		
<u>Swartland Cape Culture Range Or Other Approved Hardwood Doors, Etc.</u>					
5	44mm Framed, ledged and braced batten stable door as type SD2S, size 813 x 2032mm high overall, to be supplied and installed by specialist.	No	1		
Carried to Collection				R	
SECTION NO. 3					
BILL NO. 6					
CARPENTRY AND JOINERY					

FLUSH DOORS

Semi Solid Core Door Finished On Both Sides With Veneer Cladding And Hardwood Edges Strips All Round To Be Painted Elsewhere

- 1 44mm Door, (Hung) size 813 x 2032mm.

No

2

FRAMES AND LININGS (FRAMED)

Wrot Meranti

- 2 70 x 108mm Rebated frame with haunches and no cill, to suit single door size 813 x 2032mm.

No

2

- 3 70 x 108mm Rebated frame with haunches and including cill, to suit single door size 813 x 2032mm.

No

1

- 4 70 x 108mm Rebated frame with haunches and including cill, to suit single door size 1612 x 2032mm.

No

1

MOULDINGS, ETC

Wrot Meranti

- 5 19mm Quadrant bead.

m

43

- 6 32 x 70mm Splayed and profiled weatherboard, screwed to and including groove in door with heads of screws sunk and pelleted.

m

2

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SECTION NO. 3
BILL NO. 6
CARPENTRY AND JOINERY

SECTION NO. 3

BILL NO. 6

CARPENTRY AND JOINERY

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SECTION NO. 3

BILL NO. 6

CARPENTRY AND JOINERY

Rate

Amount

Fittings To Kitchen

- 1 U-shaped kitchen floor cupboard approximate size 9000mm extreme girth x 600mm wide x 900mm high overall, including for sink-cut out.

No

1

Fittings To Classroom And Office

- 2 Floor cupboard or pigeon hole unit approximate size 9150mm long x 475mm wide x 850mm high overall, including double coat hooks, etc.

No

1

- 3 L-shaped office floor desk approximate size 5000mm extreme girth x 600mm wide x 900mm high overall.

No

1

- 4 Wall cupboard approximate size 813mm long x 450mm wide x 1790mm high overall.

No

2

- 5 Pinning board unit approximate size 1200mm long x 22mm wide x 1200mm high overall.

No

1

- 6 Pinning board unit approximate size 2000mm long x 22mm wide x 1200mm high overall.

No

1

- 7 Pinning board unit approximate size 2300mm long x 22mm wide x 1200mm high overall.

No

1

Fittings To Store Room

- 8 L-shaped six tier adjustable wall shelving unit approximate size 6000mm extreme girth x 380mm wide x 1800mm high overall.

No

1

Carried to Collection

R

SECTION NO. 3
BILL NO. 7
JOINERY FITTINGS

Fittings To Sick Bay

- 1 Medicine cabinet, size 800 x 300 x 450mm high overall, formed with 16mm chipcore board top, sides, bottom and division faced with Melamine laminate on both sides and edges, all housed, grooved and glued together, 19 x 32mm wrot meranti bearer at top and bottom internally and housed into sides and 3mm tempered hardboard back with smooth face inside cupboard, let into rebates in boarding all round and face sprayed with paint to match Melamine; provide two 16mm chipcore board doors, each size 284 x 418mm high, faced with Melamine laminate on both sides and edges and each door fitted with brass piano hinge, Union 4137, or other approved pin tumbler cylinder lock and 96mm nylon cabinet handle, including four 6mm float glass shelves with polished edges, size 282 x 150mm wide and with ends fixed in grooves in sides and division and screw bearers to plugs in wall.

No

1

**Loose Fittings To Classroom, Office And Sick Bay
To Be Supplied According To The School Furniture
Specification Document From The Department Of
Basic Education**

- 2 Lower primary stackable Grade R school chair, size 285mm long x 350mm wide x 615mm high overall.
- 3 Upholstered teachers chair without arms, size 570mm long x 500mm wide x 870mm high overall.
- 4 Upholstered sick room chair with arms, size 571mm long x 501mm wide x 870mm high overall.
- 5 Steel frame single bed with and including mattress, size 1910mm long x 910mm wide x 770mm high overall.
- 6 Eight seater stackable kinder garden Grade R table, size 1800mm long x 700mm wide x 500mm high overall.

No

40

No

1

No

1

No

1

No

5

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SECTION NO. 3
BILL NO. 7
JOINERY FITTINGS

SECTION NO. 3

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JOINERY FITTINGS

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SECTION NO. 3

BILL NO. 7

JOINERY FITTINGS

Item No		Quantity	Rate	Amount
<u>BILL NO. 8</u>				
<u>CEILINGS, PARTITIONS AND ACCESS FLOORING</u>				
<u>(Work Group No. 129 Unless Otherwise Stated)</u>				
<u>NAILED UP CEILINGS</u>				
<u>6mm Cladit Fibre Reinforced Cement Sheets With H-Profile Joining Strips</u>				
1	Horizontal external ceilings fixed to and including 38 x 50mm sawn Pine brandering at 400mm centres in one direction and at 400mm centres in the other direction, with additional brandering at outer edges of rooms and along joints of ceiling plates.	m2	50	
2	Horizontal internal ceilings fixed to and including 38 x 50mm sawn Pine brandering at 400mm centres in one direction and at 400mm centres in the other direction, with additional brandering at outer edges of rooms and along joints of ceiling plates.	m2	97	
3	Trim for and form trap door in fibre-cement board ceiling, size 600 x 600mm.	No	3	
<u>CORNICES, ETC</u>				
<u>Wrot Pine</u>				
4	50 X 70mm Twice rebated cornice on flat, fixed with 40mm wire nails at not exceeding 300mm centres.	m	199	
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SECTION NO. 3				
BILL NO. 8				
CEILINGS, PARTITIONS AND ACCESS FLOORING				

Item No		Quantity	Rate	Amount
<u>BILL NO. 9</u>				
<u>FLOOR COVERINGS</u>				
<u>(Work Group No. 130 Unless Otherwise Stated)</u>				
<u>FLOOR COVERINGS</u>				
<u>Belgotex Nexus Hercules Mediflor Or Other</u>				
<u>Approved Stainproof Anti Microbial Medibac Miracle</u>				
<u>Fibre Needle-punch Broadloom Carpet Sheeting</u>				
<u>5mm Thick, Laid Loose With Edges Overlocked, Of</u>				
<u>Specified Colour</u>				
1	Floor mat size 3000mm wide x 3000mm long.	No	1	
<u>Semi Flexible Quartzite Reinforced Vinyl Floor</u>				
<u>Sheeting 2,5mm Thick Of Specified Colour Laid With</u>				
<u>Adhesive To Approved Pattern</u>				
2	On screeded floors.	m2	89	
<u>Sundries</u>				
3	Prepare and apply three coats SANS approved non-slip clear acrylic emulsion sealer on vinyl flooring.	m2	89	
4	Pavelite or other approved levelling screed applied to newly screeded floors to receive vinyl flooring.	m2	89	
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SECTION NO. 3				
BILL NO. 9				
FLOOR COVERINGS				

Item No			Quantity	Rate	Amount
	<u>BILL NO. 10</u>				
	<u>IRONMONGERY (PROVISIONAL)</u>				
	<u>(Work Group No. 132 Unless Otherwise Stated)</u>				
	<u>Hinges, Bolts, Etc.</u>				
1	75 x 41mm Satin chrome on brass butt hinges.	No	15		
2	Dorma DFB-SS-027 or other approved 160mm stainless steel flush bolt.	No	1		
	<u>En-Suite Locks, Etc.</u>				
3	Union 21314-76SS or other approved privacy mortice deadlock.	No	5		
	<u>Handles, Etc.</u>				
4	Union CB612/06/13SC Protea or other approved lever furniture.	No	10		
	<u>Stops, Holders, Hooks, Etc.</u>				
5	Halcast 166 or other approved 150mm satin chrome on brass cabin hook and eye.	No	2		
6	Union CZ8731SC or other approved buffered door stop.	No	3		
	<u>BATHROOM FITTINGS</u>				
7	19mm Diameter chromium plated on steel towel rail 900mm long with pair of chromium plated flanged wall brackets screwed to plugs in wall.	No	3		
	<u>SIGNAGE</u>				
	<u>3mm Thick Anodised Aluminium Silver Signage Plates</u>				
8	Signage plate size 300mm long x 60mm high overall, engraved in black lettering arial font with letters STORE 30mm high, sign four times drilled for and screwed to timber door or door frame with satin chrome dome headed screws.	No	1		
	Carried to Collection			R	
	SECTION NO. 3				
	BILL NO. 10				
	IRONMONGERY (PROVISIONAL)				

1	Signage plate size 300mm long x 60mm high overall, engraved in black lettering arial font with letters KITCHEN 30mm high, sign four times drilled for and screwed to timber door or door frame with satin chrome dome headed screws.	No	1		
2	Signage plate size 350mm long x 60mm high overall, engraved in black lettering arial font with letters GRADE R 30mm high, sign four times drilled for and screwed to timber door or door frame with satin chrome dome headed screws.	No	1		
3	Signage plate size 350mm long x 60mm high overall, engraved in black lettering arial font with letters SICK BAY 30mm high, sign four times drilled for and screwed to timber door or door frame with satin chrome dome headed screws.	No	1		
	<u>Photoluminisscent SABS 1186 Certified ABS Plastic, With Natural Anodized Aluminium Frame Signs Size 290 x 290mm Screw Fixed To Walls With Non-Corrosive Screws</u>				
4	Fire signage, code F28.	No	2		
Carried to Collection					R
SECTION NO. 3 BILL NO. 10 IRONMONGERY (PROVISIONAL)					

SECTION NO. 3

BILL NO. 10

IRONMONGERY (PROVISIONAL)

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SECTION NO. 3

BILL NO. 10

IRONMONGERY (PROVISIONAL)

Natural Anodised Aluminium

- 1 Chain operated roller shutter complete size 1300 x 1500mm high, with 75mm wide extruded slates, 75mm wide side guides, weather seal to bottom edge, pressed canopy and barrel bolt, ironmongery, frame plugged and screwed to reveal at 300mm centres, to be supplied and installed by specialist.

No

1

VITREOUS ENAMELLED CHALK BOARDS

- 2 Vitrex 1000 or other approved vitreous enamelled magnetic wall mounted writing board complying with SABS CKS36/1980 specification, complete with permanent steel chalk rail, fixing brackets, etc., including securely fixing to plastered wall in strict accordance with the manufacturer's instructions, size 2400 x 1140mm high. **(Provisional)**.

No

1

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SECTION NO. 3
BILL NO. 11
METALWORK

SECTION NO. 3

BILL NO. 11

METALWORK

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SECTION NO. 3

BILL NO. 11

METALWORK

Item No		Quantity	Rate	Amount
	<u>BILL NO. 12</u>			
	<u>PLASTERING</u>			
	<u>(Work Group No. 142 Unless Otherwise Stated)</u>			
	<u>SCREEDS</u>			
	<u>Screeds In 3-1 Cement Mortar On Concrete, Finished Smooth With A Steel Trowel To Receive Floor Finishes (Elsewhere Measured)</u>			
1	30mm Thick screed to floors to receive vinyl floor tiles.	m2	89	
2	30mm Thick to screed to floors to receive porcelain floor tiles.	m2	9	
	<u>EXTERNAL PLASTER</u>			
	<u>One Coat 4-1 Cement Plaster With Sikalite Or Other Approved Waterproofing Additive, Trowelled To A Smooth Finish On Brickwork</u>			
3	Walls.	m2	180	
4	Narrow widths.	m2	12	
5	Sloping and projecting cill in narrow widths not exceeding 300mm girth.	m	11	
	<u>One Coat 4-1 Cement Plaster With Sikalite Or Other Approved Waterproofing Additive, Trowelled To A Smooth Finish On Concrete</u>			
6	Beam sides.	m2	34	
7	Beam soffits.	m2	8	
	<u>INTERNAL PLASTER</u>			
	<u>One Coat 4-1 Cement Plaster, Trowelled To A Smooth Finish On Brickwork</u>			
8	Walls.	m2	132	
9	Narrow widths.	m2	8	
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	SECTION NO. 3			
	BILL NO. 12			
	PLASTERING			

Item No		Quantity	Rate	Amount
	<u>BILL NO. 13</u>			
	<u>TILING (PROVISIONAL)</u>			
	<u>(Work Group No. 144 Unless Otherwise Stated)</u>			
	<u>FLOOR TILES</u>			
	Supply Only Ceramic Wall Tiles Including All Necessary Waste (Rate To Include For Waste) (Area Measured Is Net Area Of Tiling)			
1	On floors. m2	9		
	<u>Take Delivery, Store Until Required And Fix 600 x 600mm Non Slip Porcelain Tiles (Supply Of Tiles Elsewhere Measured) To Screeded Surface Unless Otherwise Described With Approved Porcelain Tile Adhesive And Jointed And Pointed With Flush Joints With Approved Grout</u>			
2	On floors. m2	9		
	<u>WALL TILING</u>			
	Supply Only Porcelain Floor Tiles Including All Necessary Waste (Rate To Include For Waste) (Area Measured Is Net Area Of Tiling)			
3	On walls. m2	37		
4	On walls as splash backs to basins and sink. m2	1		
5	On narrow widths. m2	2		
	<u>Take Delivery, Store Until Required And Fix 150 x 150mm Ceramic Wall Tiles (Supply Of Tiles Elsewhere Measured) To Plastered Walls Unless Otherwise Described With Approved Ceramic Tile Adhesive And Jointed And Pointed With Flush Joints With Approved Grout</u>			
6	On walls. m2	37		
7	On walls as splash backs to basins and sink. m2	1		
	Carried to Collection		R	
	SECTION NO. 3			
	BILL NO. 13			
	TILING (PROVISIONAL)			

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SECTION NO. 3

BILL NO. 13

TILING (PROVISIONAL)

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BILL NO. 13

TILING (PROVISIONAL)

Item No		Quantity	Rate	Amount
<u>BILL NO. 14</u>				
<u>PLUMBING AND DRAINAGE</u>				
<u>(PROVISIONAL)</u>				
<u>(Work Group No. 148 Unless Otherwise Stated)</u>				
<u>WATER SUPPLIES</u>				
<u>Class 2 Copper Pipes</u>				
1	15mm Pipe fixed to walls.	m	6	
2	22mm Ditto.	m	4	
3	28mm Ditto.	m	2	
<u>Extra For Brass Compression Type Fittings</u>				
4	15mm Fittings.	No	9	
5	22mm Fittings.	No	6	
6	28mm Fittings.	No	3	
<u>Valves, Etc., Complying With SABS 226 And</u>				
<u>Connections To IPS Plastic Pipes, Including</u>				
<u>Connectors</u>				
7	15mm Brass stop valve.	No	3	
8	22mm Ditto.	No	4	
9	28mm Ditto.	No	2	
10	Cobra 106-15 or other approved 15mm chromium plated star pattern bibcock.	No	1	
11	Cobra 171/041, or other approved 15mm chromium plated sink pillar mixer with overarm swivel outlet, including hole through stainless steel sink.	No	1	
Carried to Collection				R
SECTION NO. 3				
BILL NO. 14				
PLUMBING AND DRAINAGE (PROVISIONAL)				

HOT WATER CYLINDER

1	Prisma PRX-10-UB or other approved 10 litre undercounter water heater with 22mm connections and fitted with electric element, pressure gauge, safety valve, pressure relief valve, 20mm air relief valve/vacuum breaker, including all joints to copper pipes and fixing into position and connecting up.	No	1
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FIRE EXTINGUISHERS

2	4,5kg Dry chemical powder fire extinguisher for ABC fires in accordance with SANS, complete with bracket and timber backboard.	No	2
3	4,5kg CO2 fire extinguisher for ABC fires in accordance with SANS, complete with bracket and timber backboard.	No	1

SANITARY PLUMBING**Rigid PVC Soil And Waste Pipes Complying With SABS 967**

4	40mm Pipe fixed to wall.	m	6
5	50mm Ditto.	m	4

Extra Over PVC Pipes For

6	40mm Bend.	No	6
7	50mm Bend.	No	3
8	40mm Inspection eye bend.	No	3
9	40mm Junction.	No	3
10	50mm Junction.	No	3
11	40mm Single bowl sink P-trap including joints to outlets of bowls including adaptor and end of PVC pipe.	No	1

Chromium Plated Brass

12	38mm Bottle trap as Cobra 345/50 or other approved jointed to waste union of urinal and to PVC pipe including adaptor.	No	2
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Carried to Collection**R**

SECTION NO. 3
 BILL NO. 14
 PLUMBING AND DRAINAGE (PROVISIONAL)

SANITARY FITTINGS**Note:**

All fittings butting up against wall, floor, cupboard finishes are to be sealed with an approved silicone sealer to the Representative/ Agent's satisfaction.

1	Approved grade 304 (18/10) stainless steel one piece pressed drop in sink, size 900 x 535 x 146mm deep overall, fitted with 38mm chromium plated brass screwed waste outlet unions with grids, plugs and chains and fitted into opening in worktop and sealed all round with anti-fungicidal silicone sealant.	No	1
2	Approved 0,8mm thick grade 304 (17/10) stainless steel one piece pressed drinking trough, size 540 x 370 x 388mm deep overall, fitted with 38mm chromium plated brass screwed waste outlet unions with grids, plugs and chains and fixed on and including two falcon brackets, each securely bolted to brick pier.	No	1
3	Vaal Hibiscus 7023, or other approved white ceramic fireclay rectangular heavy duty basin, size 550 x 400mm, complete with two semi-concealed cast iron brackets, single Cobra 211-15 or other approved 15mm chromium plated brass easy clean pillar tap, 32mm chromium plated brass screwed waste outlet union with chromium plated anti-theft plug with spindle and fix to wall.	No	1
4	Allow for testing water supplies, sanitary plumbing and fittings.		Item

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BILL NO. 14

PLUMBING AND DRAINAGE (PROVISIONAL)

SECTION NO. 3

BILL NO. 14

PLUMBING AND DRAINAGE (PROVISIONAL)

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BILL NO. 14

PLUMBING AND DRAINAGE (PROVISIONAL)

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Item No		Quantity	Rate	Amount
<u>BILL NO. 16</u>				
<u>PAINTWORK</u>				
<u>(Work Group No. 152 Unless Otherwise Stated)</u>				
<u>PAINT ON PLASTER, FIBRE REINFORCED CEMENT, ETC.</u>				
<u>Prepare And Apply One Coat Alkali Resistant Plaster Primer And Two Coats Pure Acrylic Washable Exterior Emulsion Paint</u>				
1	On plastered walls.	m2	101	
2	On concrete seats.	m2	9	
3	On concrete hatch slab.	m2	2	
4	On ceilings with PVC H-profile joining strips and timber cornices.	m2	97	
5	On fibre cement cills not exceeding 300mm girth.	m	10	
<u>Prepare And Apply One Coat Alkali Resistant Plaster Primer And Two Coats Super Matt Acrylic PVA Paint</u>				
6	On plastered walls.	m2	233	
7	On ceilings with PVC H-profile joining strips and timber cornices.	m2	50	
8	On eave or verge soffit linings with PVC H-profile joining strips and timber cornices.	m2	49	
9	On fascias and barge boards.	m2	29	
10	On plastered cills not exceeding 300mm girth.	m	11	
<u>PAINT ON METAL</u>				
Carried to Collection				R
SECTION NO. 3 BILL NO. 16 PAINTWORK				

Prepare, Prime With Self Etching Primer And Apply One Coat Undercoat And Two Coats Non-Drip Enamel Paint

Note: The following surfaces are all galvanised steel.

1	On gates and frames.	m2	4
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PAINT ON WOOD

Prepare And Apply One Coat Wood Primer

2	On backs of frames, etc., not exceeding 300mm girth.	m	14
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3	On backs of skirtings, etc., not exceeding 300mm girth.	m	65
---	---	---	----

Prepare And Apply One Coat Wood Waterproofing Primer, One Coat Universal Undercoat And Two Coats Non-Drip Enamel Paint

4	On flush doors.	m2	7
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5	On panel glazed doors.	m2	7
---	------------------------	----	---

6	On battened doors.	m2	4
---	--------------------	----	---

7	On frames.	m2	7
---	------------	----	---

Prepare And Apply One Coat Wood Waterproofing Primer, One Coat Universal Undercoat And Two Coats Varnish

8	On skirtings, surrounds, rails, etc., not exceeding 300mm girth.	m	65
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BILL NO. 16
PAINTWORK

SECTION NO. 3

BILL NO. 16

PAINTWORK

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SECTION NO. 3

BILL NO. 16

PAINTWORK

SECTION SUMMARY - GRADE R BLOCK

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Item No		Quantity	Rate	Amount
	<u>SECTION NO. 3</u>			
	<u>UNISEX ABLUTIONS</u>			
	<u>BILL NO. 1</u>			
	<u>FOUNDATIONS (PROVISIONAL)</u>			
	<u>(Work Group No. 104 Unless Otherwise Stated)</u>			
	<u>EARTHWORKS</u>			
	<u>Excavations</u>			
1	Excavate in earth for bulk excavations to reduce levels under ground, not exceeding 2000mm deep.	m3	64	
2	Excavate in earth for bulk excavations to reduce levels under ground, exceeding 2000mm and not exceeding 4000mm deep.	m3	18	
3	Excavate in earth to form slab thickening, not exceeding 2000mm deep.	m3	5	
4	Extra over bulk excavations in earth for excavation in soft rock.	m3	9	
5	Ditto in hard rock.	m3	4	
	<u>Working Space</u>			
6	Working space excavated back for a width as necessary and backfill with material arising from the excavations compacted in multiple layers not exceeding 150mm thick to 93% Mod AASHTO, excavation exceeding 1500mm deep for formwork to sides of retaining walls. (excavation measured flush with face of concrete).	m2	51	
	<u>Sundries</u>			
7	Extra over all excavations for carting away from site surplus excavated material.	m3	83	
8	Keep the excavations free of water other than subterranean and seepage water.	Item		
	Carried to Collection			R
	SECTION NO. 4			
	BILL NO. 1			
	FOUNDATIONS (PROVISIONAL)			

1	Risk of collapse to sides of excavations exceeding 1500mm deep.	m2	65
<u>Filling</u>			
2	Scarify surface of ground to a depth of 150mm and compact to 93% Mod AASHTO density.	m2	32
3	150mm Compacted thickness G5 base course complying with SANS 1200 ME supplied by the Contractor and compacted to 98% Mod AASHTO density under solid floors.	m2	32
4	25mm Layer of clean dry sand spread and levelled over filling to receive damp proof course (elsewhere measured) under floors, including SANS approved termite poison treatment.	m2	32

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 BILL NO. 1
 FOUNDATIONS (PROVISIONAL)

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BILL NO. 1

FOUNDATIONS (PROVISIONAL)

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BILL NO. 1

FOUNDATIONS (PROVISIONAL)

Item No		Quantity	Rate	Amount
	<u>BILL NO. 2</u>			
	<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>			
	<u>(Work Group No. 110 Unless Otherwise Stated)</u>			
	<u>TESTS</u>			
1	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	5	
	<u>CONCRETE</u>			
	<u>Reinforced Concrete 25 MPa Of 19mm Stone</u>			
2	In raft foundations on waterproof sheeting.	m3	8	
	<u>Reinforced Concrete 30MPa Of 19mm Stone</u>			
3	In slabs including beams and inverted beams.	m3	6	
4	In retaining walls.	m3	13	
	<u>CONCRETE SUNDRIES</u>			
	<u>Finish To Concrete Surface</u>			
5	Trowel raft foundation to a smooth surface in one operation with additional mortar as required.	m2	32	
6	Trowel concrete slab to a smooth surface in one operation with additional mortar as required and finishing off with a stipple roller to a non-skid finish to approval.	m2	3	
	<u>FORMWORK (USE AND WASTE) TO CONCRETE (Work Group No. 111 Unless Otherwise Stated)</u>			
	<u>Rough Formwork To</u>			
7	Sides of retaining walls.	m2	51	
	Carried to Collection			R
	SECTION NO. 4			
	BILL NO. 2			
	CONCRETE, FORMWORK AND REINFORCEMENT			

<u>Smooth Formwork To</u>					
1	Sides of retaining walls.	m2	51		
<u>Smooth Formwork To Be Removed Through Confined Spaces To</u>					
2	Soffit of slabs.	m2	32		
<u>Boxing In Rough Formwork To Form</u>					
3	Opening through 200mm slab exceeding 1000mm and not exceeding 2000mm perimeter girth to receive manhole cover and frame size 600 x 600mm (elsewhere measured).	No	1		
4	Circular opening through 200mm slab not exceeding 1000mm perimeter girth to receive drainage pipe 110mm diameter (elsewhere measured).	No	4		
<u>STEEL REINFORCEMENT (PROVISIONAL)</u>					
<u>(Work Group No. 114 Unless Otherwise Stated)</u>					
<u>Mild Steel Bar Reinforcement To Structural Concrete Work</u>					
5	10mm Diameter bars.	t	0.20		
<u>High Tensile Steel Bar Reinforcement To Structural Concrete Work</u>					
6	10mm Diameter bars.	t	0.29		
7	12mm Diameter bars.	t	0.78		
8	16mm Diameter bars.	t	0.59		
9	20mm Diameter bars.	t	0.10		
<u>MESH REINFORCEMENT (PROVISIONAL) (Work Group No. 114 Unless Otherwise Stated)</u>					
<u>Fabric Reinforcement To Concrete Work</u>					
10	Welded high tensile steel fabric mesh reinforcement, Reference No. 245 (2,45kg/m ²) laid in concrete surface beds and slabs, including laps and spacer blocks (measured net).	m2	64		
Carried to Collection				R	
SECTION NO. 4					
BILL NO. 2					
CONCRETE, FORMWORK AND REINFORCEMENT					

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BILL NO. 2

CONCRETE, FORMWORK AND REINFORCEMENT

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BILL NO. 2

CONCRETE, FORMWORK AND REINFORCEMENT

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Item No		Quantity	Rate	Amount
	<u>BILL NO. 3</u>			
	<u>MASONRY</u>			
	<u>(Work Group No. 116 Unless Otherwise Stated)</u>			
	<u>BRICKWORK</u>			
	<u>Brickwork In Burnt Clay NFP Bricks In Class II Mortar</u>			
1	Half brick wall.	m2	13	
2	Half brick wall in beam filling.	m2	8	
3	One brick wall including ties.	m2	62	
	<u>Brickwork Sundries</u>			
4	Turning piece to brick lintol not exceeding 300mm wide on soffit.	m	6	
5	1,6mm Thick x 32mm wide x 500mm long galvanised hoop iron door frame cramp with one end twice screwed to back of frame and other end built into brickwork and turned up into joint.	No	30	
6	1,6mm Thick x 32mm wide x 1500mm long galvanised hoop iron truss tie with one end built 750mm deep into brickwork and other end wrapped over truss and spiked to roof timbers.	No	24	
7	Set of two 225 x 150mm terra cotta louvred air bricks, covered on back with mosquito gauze and building into one brick wall, including forming straight flue through wall with fair cut flat arch over, building cavities solid all round and with sides rendered in 3-1 cement mortar.	No	8	
	<u>Brick Reinforcement</u>			
8	Galvanised high tensile wire welded fabric reinforcement 75mm wide and built into half brick wall and lintols, well lapped at angles and intersections.	m	77	
9	Ditto 150mm wide.	m	209	
	Carried to Collection			R
	SECTION NO. 4			
	BILL NO. 3			
	MASONRY			

**Precast Prestressed Vibrated Cement Concrete
(30MPa) Lintols Including Moulds, Reinforcement,
Propping, Etc.**

- | | | | |
|---|--|---|----|
| 1 | Lintol 110mm wide x 75mm deep in lengths not exceeding 3000mm. | m | 15 |
|---|--|---|----|

EXTERNAL FACINGS

- | | | | |
|---|--|----|----|
| 2 | Extra over ordinary brickwork for facing in stretcher bond and pointing with a square recessed joint. | m2 | 62 |
| 3 | Brick on edge lintol to soffit to one brick wall opening and pointing to all exposed sides. | m | 6 |
| 4 | Brick on edge projecting cill 220mm wide, sloping and pointing to all exposed sides, including all necessary rough and fair cutting. | m | 5 |

INTERNAL FACINGS

Golden Wheat Travertine FBX (or similar approved) solid brick on sill ends

- | | | | |
|---|---|----|----|
| 5 | Extra over ordinary brickwork for facing in stretcher bond and pointing with a square recessed joint. | m2 | 47 |
|---|---|----|----|

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BILL NO. 3
MASONRY

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BILL NO. 3

MASONRY

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BILL NO. 3

MASONRY

Item No			Quantity	Rate	Amount
	<u>BILL NO. 4</u>				
	<u>WATERPROOFING</u>				
	<u>(Work Group No. 120 Unless Otherwise Stated)</u>				
	<u>DAMP PROOF SHEETING</u>				
	<u>Damp Proof Sheeting To Walls And Floors</u>				
1	250 Micron thick green polyethylene damp proof sheeting laid under solid floors.	m2	32		
2	375 Micron thick black embossed polyethylene damp proof course on walls.	m2	11		
	<u>WATERPROOFING TO SEPTIC TANK</u>				
	<u>Water Stop Joint</u>				
3	Sikaswell P-2003M PVC or other approved waterstop and cast between concrete.	m	50		
	<u>2mm Thick Sikagard 720 Or Other Approved Levelling Mortar Applied Strictly In Accordance With The Manufacturers Instructions On</u>				
4	Top of raft foundation.	m2	32		
5	Vertical sides of concrete walls.	m2	51		
6	Soffit of concrete slab.	m2	32		
	<u>Two Coats Sikagard 63N Or Other Approved Chemical Resistant Epoxy Coating Applied Strictly In Accordance With The Manufacturers Instructions On</u>				
7	Top of raft foundation.	m2	32		
8	Vertical sides of concrete walls.	m2	51		
	Carried to Collection			R	
	SECTION NO. 4				
	BILL NO. 4				
	WATERPROOFING				

1	Soffit of concrete slab.	m2	32		
<u>JOINT SEALANTS</u>					
<u>Pointing</u>					
2	Sikaflex-Pro 2HP or other approved polyurethane sealant applied by means of a gun at junction of timber window and door frames.	m	10		
3	Sikaflex-Pro 2HP or other approved polyurethane sealant applied by means of a gun at junction of aluminium window and door frames.	m	44		
Carried to Collection					
SECTION NO. 4 BILL NO. 4 WATERPROOFING				R	

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BILL NO. 4

WATERPROOFING

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SECTION NO. 4

BILL NO. 4

WATERPROOFING

**Watertite Guttering Or Other Approved Seamless
Baked Enamel Prepainted Rolled Aluminium
Profiled Rainwater Goods And Accessories Of
Approved Colour Fixed In Strict Accordance With
The Manufacturer's Instructions**

1	150 x 125 x 0,8mm Ogee profile gutter fixed to fibre cement fascia with patented internal brackets at maximum 500mm centres.	m	29
2	Extra for external angle.	No	5
3	Extra for internal angle.	No	1
4	Extra for centre nozzle with outlet for 110mm diameter rainwater pipe.	No	2

**uPVC Rainwater Goods With Solvent Cement And
Clip-On Joints**

5	110mm Diameter rainwater pipe and fixing clear of walls with and including aluminium holderstraps at maximum 1000mm centres fixed to and including 144 x 144 x 19mm thick wrot meranti block with rounded corners four times plugged and brass screwed to wall.	m	6
6	Extra for shoe.	No	2
7	Extra for eaves offset 800mm projection.	No	2

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SECTION NO. 4
BILL NO. 5
ROOF COVERINGS, ETC.

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BILL NO. 5

ROOF COVERINGS, ETC.

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SECTION NO. 4

BILL NO. 5

ROOF COVERINGS, ETC.

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Item No		Quantity	Rate	Amount
	<u>BILL NO. 6</u>			
	<u>CARPENTRY AND JOINERY</u>			
	<u>(Work Group No. 126 Unless Otherwise Stated)</u>			
	<u>ROOF CONSTRUCTION</u>			
	<u>PREFABRICATED ROOF TRUSSES</u>			
	(a) Tenderers are referred to the detail roof plans issued with these Bills of Quantities. All the roof trusses are to be at a maximum of 1100mm centres and constructed for a 25 degree pitch unless otherwise stated. Truss dimensions have been measured to the overall roof plan size. (b) All the roof trusses to be designed and constructed with softwood structural timber to include for live loads, wind loads and to take a 0,8mm thick sheet metal roof covering on purlins and fibre cement or gypsum plasterboard ceilings with bracing. Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by CSIR approved patented galvanised metal spiked connectors, fixed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions. (c) Unless otherwise described all rafter feet are to extend approximately 910mm beyond the length of the tie beam, with ends wrot and twice splay cut. (d) The design, manufacture and transportation of the roof trusses, bracing, etc. shall be under the control of a registered Engineer and it shall be required from the manufacturer of the trusses to lodge a written guarantee that his construction has been designed by a qualified Structural Engineer and that he is in possession of a capability certificate issued by the Institute for Timber Construction and approved by the Representative/Agent. (e) The tenderers attention is drawn to the fact that the complete set of project drawings may be viewed at the offices of the Representative/Agent.			
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	CARPENTRY AND JOINERY			

(f) Erection must be carried out as described in The Erection and Bracing of Timber Roof Trusses published by the Truss Plate Association of South Africa Ltd. and the National Timber Research Institute, CSIR. A certificate of compliance must be submitted to the Representative/Agent on completion of the total roof construction by a Registered Structural Engineer representing the roof truss manufacturer's.

(g) Descriptions of roof trusses shall be deemed to include for design, manufacture, supply, hoisting and fixing in position, trimming ends, notching, etc. and for any temporary bracing.

Double Pitch Prefabricated Connector Plate Roof Trusses At 1100mm Maximum Centres With A Pitch Of 25 Degrees And Suitable For 0.80mm Thick IBR Sheet Roofing With 50 x 76mm Purlins At 1050mm Centres And 6mm Thick Claddit Nailed Up Ceilings With 38 x 50mm Brandering

- 1 Roof construction to suit rectangular shaped roof for pit toilet building, etc. size $\pm$ 6900mm long x 4400mm wide overall complete with 800mm eaves overhangs. (Hoisting $\pm$ 2890mm high).

No

1

- 2 Temporary and permanent bracing to suit the above roof truss designs.

Item

SUNDRY ROOF TIMBERS

Sawn Softwood

- 3 38 x 114mm Wall plate.

m

23

- 4 50 x 76mm Purlin.

m

44

- 5 50 x 76mm Purlin to hips.

m

46

- 6 50 x 76mm Purlin to valley.

m

7

Sundries

- 7 Teco or other approved galvanised mild steel hurricane clip used at junction of timber trusses and purlins.

No

120

EAVES AND VERGES

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BILL NO. 6

CARPENTRY AND JOINERY

<u>Everite Or Other Approved 6mm Fibre-Reinforced Cement Eaves And Verge Linings With PVC H-Profile Joining Strips (Work Group No. 129 Unless Otherwise Stated)</u>				
1	Sloping eaves soffit lining in approximately 800mm widths fixed to and including 38 x 50mm sawn Pine brandering at 450mm centres across sheets and along both edges, with brandering fixed to soffit of rafter overhang.	m	29	
<u>Pressed Fibre Reinforced Cement Fascia And Barge Board (Work Group No. 129 Unless Otherwise Stated)</u>				
2	12 x 225mm Pressed flat fascia, butt jointed with aluminium H-profile fascia joiners and twice drilled for and screwed to purlin and including 38 x 114mm Pine fixing cleat 114mm long fixed vertically to side of rafter feet at approximately 1100mm centres with two 38 x 50mm Pine fascia fixing runners to take fascia fixed to same.	m	29	
<u>DOORS, ETC.</u>				
<u>Wrot Meranti</u>				
3	44mm Framed, ledged and braced batten door complete, size 813 x 2032mm high overall.	No	1	
<u>FLUSH DOORS</u>				
<u>Semi Solid Core Door Finished On Both Sides With Veneer Cladding And Hardwood Edges Strips All Round To Be Painted Elsewhere</u>				
4	44mm Door, (Hung) size 813 x 2032mm.	No	4	
<u>FRAMES AND LININGS (FRAMED)</u>				
<u>Wrot Meranti</u>				
5	70 x 108mm Rebated frame with haunches and no cill, to suit single door size 813 x 2032mm.	No	4	
6	70 x 108mm Rebated frame with haunches and including cill, to suit single door size 813 x 2032mm.	No	1	
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SECTION NO. 4				
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CARPENTRY AND JOINERY				

MOULDINGS, ETC**Wrot Meranti**

1	19mm Quadrant bead.	m	52		
2	32 x 70mm Splayed and profiled weatherboard, screwed to and including groove in door with heads of screws sunk and pelleted.	m	1		

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 CARPENTRY AND JOINERY

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CARPENTRY AND JOINERY

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BILL NO. 6

CARPENTRY AND JOINERY

Item No		Quantity	Rate	Amount
<u>BILL NO. 7</u>				
<u>CEILINGS, PARTITIONS AND ACCESS FLOORING</u>				
<u>(Work Group No. 129 Unless Otherwise Stated)</u>				
<u>NAILED UP CEILINGS</u>				
<u>6mm Cladit Fibre Reinforced Cement Sheets With H-Profile Joining Strips</u>				
1	Horizontal internal ceilings fixed to and including 38 x 50mm sawn Pine brandering at 400mm centres in one direction and at 400mm centres in the other direction, with additional brandering at outer edges of rooms and along joints of ceiling plates.	m2	24	
2	Cut and trim fibre cement board ceiling for 240mm diameter cowl, with and including edging trims, etc.	No	1	
3	Trim for and form trap door in fibre-cement board ceiling, size 600 x 600mm.	No	1	
<u>CORNICES, ETC</u>				
<u>Wrot Pine</u>				
4	50 X 70mm Twice rebated cornice on flat, fixed with 40mm wire nails at not exceeding 300mm centres.	m	98	
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SECTION NO. 4				
BILL NO. 7				
CEILINGS, PARTITIONS AND ACCESS FLOORING				

Item No			Quantity	Rate	Amount
	<u>BILL NO. 8</u>				
	<u>IRONMONGERY (PROVISIONAL)</u>				
	<u>(Work Group No. 132 Unless Otherwise Stated)</u>				
	<u>Hinges, Bolts, Etc.</u>				
1	75 x 41mm Satin chrome on brass butt hinges.	No	15		
	<u>En-Suite Locks, Etc.</u>				
2	Union 2X6SC or other approved 65mm satin chrome oval double cylinder with two keys.	No	1		
3	Union 21314-76SS or other approved privacy mortice deadlock.	No	3		
4	Union 5004-73SS or other approved privacy escutcheon for physically disabled persons.	Sets	1		
	<u>Handles, Etc.</u>				
5	Union CB612/06/13SC Protea or other approved lever furniture.	No	8		
6	Union solid CB612-13 Protea or other approved handles on a 165 x 50mm backplate for oval cylinders.	No	1		
	<u>Stops, Holders, Hooks, Etc.</u>				
7	Halcast 166 or other approved 150mm satin chrome on brass cabin hook and eye.	No	1		
8	Union CZ8731SC or other approved buffered door stop.	No	5		
	<u>BATHROOM FITTINGS</u>				
9	Steel 366S-CP or other approved thiefproof toilet roll holder with chrome plated finish and screwed to plugs in wall.	No	4		
10	19mm Diameter chromium plated on steel towel rail 900mm long with pair of chromium plated flanged wall brackets screwed to plugs in wall.	No	2		
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	BILL NO. 8				
	IRONMONGERY (PROVISIONAL)				

1	32mm Diameter stainless steel grade 304 18/10 straight grab rail with fine grip 700mm x 95mm deep, plugged and screwed to walls with stainless steel screws.	No	1
2	32mm Diameter stainless steel grade 304 18/10 angle bar with fine grip 415mm x 415mm x 95mm deep, plugged and screwed to walls with stainless steel screws.	No	1
<u>SIGNAGE</u>			
<u>3mm Thick Anodised Aluminium Silver Signage Plates</u>			
3	Signage plate size 200mm long x 200mm high overall, engraved with disabled pictogram, sign four times drilled for and screwed to timber door or door frame with satin chrome dome headed screws.	No	1
4	Signage plate size 300mm long x 60mm high overall, engraved in black lettering arial font with letters ABLUTION 30mm high, sign four times drilled for and screwed to timber door or door frame with satin chrome dome headed screws.	No	5

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 IRONMONGERY (PROVISIONAL)

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IRONMONGERY (PROVISIONAL)

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BILL NO. 8

IRONMONGERY (PROVISIONAL)

Item No		Quantity	Rate	Amount
	<u>BILL NO. 9</u>			
	<u>METALWORK</u>			
	<u>(Work Group No. 136 Unless Otherwise Stated)</u>			
	<u>60-80 MICRON WHITE GLOSS</u>			
	<u>POWDERCOATED ALUMINIUM WINDOWS(Work Group No. 140 Unless Otherwise Stated)</u>			
	<u>Purpose Made Pre-Glazed Aluminium Top Hung Windows System, Manufactured Complying With The AAMSA, SAGA, NBR And SANS Codes Of Practice, Complete With Ironmongery, Glazing With A Minimum Of 6.38mm Thick PFG Clearvue Or Other Approved Clear Laminated Safety Glass, Neoprene Gaskets And Including Setting Up, Building In, Filling Back Of Frame With Cement Mortar,Etc. (Polysulphide Pointing To Frame Elsewhere Measured)</u>			
1	Window, size 600 x 980mm high overall with obscure glass pane.	No	4	
2	Window, size 1300 x 980mm high overall divided into four panes with obscure glass panes.	No	2	
	<u>VENTILATION SYSTEM</u>			
	<u>Galvanised Mild Steel Ventilation System</u>			
3	240mm Diameter whirlybird or other approved ventilation system fixed to top of cowl.	No	1	
4	240mm Diameter cowl, with and including support bracing in roof space.	m	2	
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	SECTION NO. 4			
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	METALWORK			

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Item No		Quantity	Rate	Amount
	<u>BILL NO. 11</u>			
	<u>TILING (PROVISIONAL)</u>			
	<u>(Work Group No. 144 Unless Otherwise Stated)</u>			
	<u>FLOOR TILES</u>			
	Supply Only Porcelain Floor Tiles Including All Necessary Waste (Rate To Include For Waste) (Area Measured Is Net Area Of Tiling)			
1	On floors.	m2	24	
	<u>Take Delivery, Store Until Required And Fix 600 x 600mm Non Slip Porcelain Tiles (Supply Of Tiles Elsewhere Measured) To Screeded Surface Unless Otherwise Described With Approved Porcelain Tile Adhesive And Jointed And Pointed With Flush Joints With Approved Grout</u>			
2	On floors.	m2	24	
	<u>WALL TILING</u>			
	Supply Only Ceramic Wall Tiles Including All Necessary Waste (Rate To Include For Waste) (Area Measured Is Net Area Of Tiling)			
3	On walls as splash backs to basins and sink.	m2	1	
	<u>Take Delivery, Store Until Required And Fix 150 x 150mm Ceramic Wall Tiles (Supply Of Tiles Elsewhere Measured) To Plastered Walls Unless Otherwise Described With Approved Ceramic Tile Adhesive And Jointed And Pointed With Flush Joints With Approved Grout</u>			
4	On walls as splash backs to basins and sink.	m2	1	
	<u>SUNDRIES</u>			
	<u>Corner Protectors, Expansion Joint Edging, Etc</u>			
5	Tylon or other approved PVC tile edge protector fixed with tiling.	m	5	
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	SECTION NO. 4			
	BILL NO. 11			
	TILING (PROVISIONAL)			

Item No			Quantity	Rate	Amount
	<u>BILL NO. 12</u>				
	<u>PLUMBING AND DRAINAGE</u>				
	<u>(PROVISIONAL)</u>				
	<u>(Work Group No. 148 Unless Otherwise Stated)</u>				
	<u>WATER SUPPLIES</u>				
	<u>Class 2 Copper Pipes</u>				
1	15mm Pipe fixed to walls.	m	4		
2	22mm Ditto.	m	2		
3	28mm Ditto.	m	1		
	<u>Extra For Brass Compression Type Fittings</u>				
4	15mm Fittings.	No	6		
5	22mm Fittings.	No	4		
6	28mm Fittings.	No	2		
	<u>Valves, Etc., Complying With SABS 226 And</u>				
	<u>Connections To IPS Plastic Pipes, Including</u>				
	<u>Connectors</u>				
7	15mm Brass stop valve.	No	2		
	<u>SANITARY PLUMBING</u>				
	<u>Rigid PVC Soil And Waste Pipes Complying With</u>				
	<u>SABS 967</u>				
8	40mm Pipe fixed to wall.	m	4		
9	50mm Ditto.	m	2		
	<u>Extra Over PVC Pipes For</u>				
10	40mm Bend.	No	4		
11	50mm Bend.	No	2		
12	40mm Inspection eye bend.	No	2		
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	BILL NO. 12				
	PLUMBING AND DRAINAGE (PROVISIONAL)				

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BILL NO. 12

PLUMBING AND DRAINAGE (PROVISIONAL)

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BILL NO. 12

PLUMBING AND DRAINAGE (PROVISIONAL)

Item No		Quantity	Rate	Amount
	<u>BILL NO. 13</u>			
	<u>PAINTWORK</u>			
	<u>(Work Group No. 152 Unless Otherwise Stated)</u>			
	<u>PAINT ON PLASTER, FIBRE REINFORCED CEMENT, ETC.</u>			
	<u>Prepare And Apply One Coat Alkali Resistant Plaster Primer, One Coat Undercoat And Two Coats Eggshell Enamel Paint</u>			
1	On plastered walls.	m2	56	
	<u>Prepare And Apply One Coat Alkali Resistant Plaster Primer And Two Coats Pure Acrylic Washable Exterior Emulsion Paint</u>			
2	On ceilings with PVC H-profile joining strips and timber cornices.	m2	24	
	<u>Prepare And Apply One Coat Alkali Resistant Plaster Primer And Two Coats Super Matt Acrylic PVA Paint</u>			
3	On eave or verge soffit linings with PVC H-profile joining strips and timber cornices.	m2	23	
4	On fascias and barge boards.	m2	14	
	<u>PAINT ON WOOD</u>			
	<u>Prepare And Apply One Coat Wood Primer</u>			
5	On backs of frames, etc., not exceeding 300mm girth.	m	31	
	<u>Prepare And Apply One Coat Wood Waterproofing Primer, One Coat Universal Undercoat And Two Coats Non-Drip Enamel Paint</u>			
6	On flush doors.	m2	14	
7	On frames.	m2	8	
8	On battened doors.	m2	4	
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	SECTION NO. 4			
	BILL NO. 13			
	PAINTWORK			

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1	FOUNDATIONS (PROVISIONAL)	49	
2	CONCRETE, FORMWORK AND REINFORCEMENT	52	
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4	WATERPROOFING	58	
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6	CARPENTRY AND JOINERY	66	
7	CEILINGS, PARTITIONS AND ACCESS FLOORING	67	
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9	METALWORK	71	
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Item No		Quantity	Rate	Amount
	<u>BILL NO. 2</u>			
	<u>HOARDING, PLATFORM AND SITE PREPARATION (PROVISIONAL)</u>			
	<u>TESTS(Work Group No. 104 Unless Otherwise Stated)</u>			
1	Provide and have filling compaction check tested by a Consulting Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	No	5	
	<u>TEMPORARY SCREENS AND HOARDINGS (Work Group No. 102 Unless Otherwise Stated)</u>			
	<u>Temporary fencing and gates</u>			
2	Temporary fencing 1800m high with and including lockable access gates to suit contractors requirements formed of 100mm diameter creosoted posts spaced at not exceeding 3000mm centres with diagonal stays at all corner and gate posts and with three strands of straining wire covered with chain mesh link fence and shade cloth, maintain as required and take down and remove on completion of contract or when directed by Principal Agent and make good to all damaged surfaces.	m	348	
	<u>GENERAL SITE WORKS(Work Group No. 104 Unless Otherwise Stated)</u>			
	<u>Site Clearance</u>			
3	Clear the whole area of the site to be built upon of all grass, roots, rubbish, etc.	m2	3 634	
	<u>Excavations, Filling, Etc.</u>			
4	Excavate in earth to varying depths to remove topsoil and deposit on site average 150m from building site including roughly spreading and levelling.	m3	174	
5	Excavate in earth to reduce levels not exceeding 2m deep for and around buildings and deposit on site average 150m from building site including roughly spreading and levelling.	m3	150	
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	BILL NO. 2			
	HOARDING, PLATFORM AND SITE PREPARATION (PR			

1	Excavate in earth to reduce levels not exceeding 2m deep for and around buildings and deposit on site in temporary stockpiles for reuse as filling under platforms.	m3	350		
2	Excavate in earth to reduce levels not exceeding 2m deep for and around buildings and cart away.	m3	250		
3	Clean, dry earth filling from the excavations, free from clay, in making up levels in platforms to buildings, quadrangles, etc. well watered and compacted in layers not exceeding 150mm thick, compacted to 98% Mod AASHTO density.	m3	350		
4	Clean, dry earth filling supplied and carted to the site by the Contractor, in making up levels in platforms to buildings, etc., well watered and compacted in layers not exceeding 150mm thick, compacted to 98% Mod AASHTO density.	m3	250		
5	G7 filling supplied and carted to the site by the Contractor, in making up levels in platforms to buildings, quadrangles, etc., well watered and compacted in layers not exceeding 150mm thick, compacted to 95% Mod AASHTO density.	m3	150		
6	G5 filling supplied and carted to the site by the Contractor, in making up levels in platforms to buildings, quadrangles, etc., well watered and compacted in layers not exceeding 150mm thick, compacted to 98% Mod AASHTO density.	m3	150		
7	Extra for carting away surplus excavated material from the excavations.	m3	250		
8	Scarify sub-grade to a depth of 150mm and compact to 93% Mod AASHTO density and grade to levels as required.	m2	1 000		
9	75mm Thick layer of approved clean top soil, supplied and carted to the site by the Contractor, levelled and prepared to receive grass to be planted by others in quadrangles.	m2	1 250		
10	Prepare topsoil and plant local instant grass sods, water, fertilise, weed and mow as required until full cover has been obtained.	m2	1 250		
11	Allow for compaction tests carried out by the Representative/Agent as directed.	No	9		
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HOARDING, PLATFORM AND SITE PREPARATION (PROVISIONAL)

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BILL NO. 2

HOARDING, PLATFORM AND SITE PREPARATION (PR

Item No		Quantity	Rate	Amount
	<u>BILL NO. 3</u>			
	<u>WALKWAYS (PROVISIONAL)</u>			
	<u>WALKWAY AND COVERED WALKWAY BETWEEN BUILDINGS</u>			
	<u>TESTS (Work Group No. 110 Unless Otherwise Stated)</u>			
1	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	2	
	<u>EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)</u>			
	<u>Excavations</u>			
2	Excavate in earth to reduce levels under ground, not exceeding 2000mm deep.	m3	8	
3	Excavate in earth to form slab thickening, not exceeding 2000mm deep.	m3	4	
4	Excavate in earth for bases, not exceeding 2000mm deep.	m3	3	
5	Extra over excavations in earth for excavation in soft rock.	m3	2	
6	Ditto in hard rock.	m3	1	
	<u>Sundries</u>			
7	Extra over all excavations for carting away from site surplus excavated material.	m3	15	
8	Keep the excavations free of water other than subterranean and seepage water.	Item		
	<u>Filling</u>			
9	Scarify surface of ground to a depth of 150mm and compact to 93% Mod AASHTO density.	m2	53	
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	BILL NO. 3			
	WALKWAYS (PROVISIONAL)			

1	150mm Compacted thickness G5 base course complying with SANS 1200 ME supplied by the Contractor and compacted to 98% Mod AASHTO density under solid floors.	m2	53		
2	Approved G5 filling, supplied by the Contractor compacted in multiple layers not exceeding 150mm thick to 95% Mod AASHTO density in backfilling to trenches, bases, etc.	m3	2		
<u>CONCRETE (Work Group No. 110 Unless Otherwise Stated)</u>					
<u>Plain Concrete 25MPa Of 12mm Stone</u>					
3	In filling to cavities of hollow piers.	m3	1		
<u>Plain Concrete 25MPa Of 19mm Stone</u>					
4	In bases cast against excavated surfaces.	m3	1		
5	In walkways cast with panels not exceeding 2m2.	m3	10		
<u>CONCRETE SUNDRIES (Work Group No. 110 Unless Otherwise Stated)</u>					
<u>Finish To Concrete Surface</u>					
6	Trowel walkway to a smooth surface in one operation with additional mortar as required and finishing off with a stipple roller to a non-skid finish to approval.	m2	53		
<u>Movement Joints</u>					
7	10mm Jointex joint filler not exceeding 300mm wide between brick and concrete surfaces.	m	47		
<u>FORMWORK (USE AND WASTE) TO CONCRETE (Work Group No. 111 Unless Otherwise Stated)</u>					
<u>Rough Formwork To</u>					
8	Edges, risers, ends and reveals not exceeding 300mm high or wide.	m	109		
<u>Boxing In Rough Formwork To Form</u>					
9	250mm Wide x 120mm high horizontal recess to top edge of raft surface bed, etc.	m	69		
Carried to Collection				R	
SECTION NO. 5					
BILL NO. 3					
WALKWAYS (PROVISIONAL)					

STEEL REINFORCEMENT (Work Group No. 114 Unless Otherwise Stated)Fabric Reinforcement To Concrete Work

- | | | | |
|---|---|----|----|
| 1 | Welded high tensile steel fabric mesh reinforcement, Reference No. 245 (2.45 kg/m2) laid in concrete, including laps and spacer blocks (measured net). | m2 | 53 |
|---|---|----|----|

BRICKWORK (Work Group No. 116 Unless Otherwise Stated)Brickwork In Burnt Clay NFP Bricks In Class II Mortar

- | | | | |
|---|--|----|----|
| 2 | One brick wall including ties. | m2 | 11 |
| 3 | 270 x 270mm Attached brick pier formed of half brick thickness with 50 x 50mm void in centre filled in with cement concrete (concrete elsewhere measured). | m | 20 |

Brickwork Sundries

- | | | | |
|---|--|----|----|
| 4 | Turning piece to brick lintol not exceeding 300mm wide on soffit. | m | 23 |
| 5 | 1,6mm Thick x 32mm wide x 1500mm long galvanised hoop iron truss tie with one end built 750mm deep into brickwork and other end wrapped over truss and spiked to roof timbers. | No | 19 |

Brick Reinforcement

- | | | | |
|---|---|---|-----|
| 6 | Galvanised high tensile wire welded fabric reinforcement 150mm wide and built into one brick wall and lintols, well lapped at angles and intersections. | m | 232 |
|---|---|---|-----|

EXTERNAL FACINGS (Work Group No. 116 Unless Otherwise Stated)

Golden Wheat Travertine FBX (or similar approved) solid brick on sill ends

- | | | | |
|---|---|----|----|
| 7 | Extra over ordinary brickwork for facing in stretcher bond and pointing. | m2 | 60 |
| 8 | Brick on edge lintol to soffit to one brick wall opening and pointing to all exposed sides. | m | 23 |
| 9 | Brick on edge coping with bull-nose to recess in edge of concrete slab and pointing to all exposed sides. | m | 69 |

Carried to Collection

SECTION NO. 5
BILL NO. 3
WALKWAYS (PROVISIONAL)

R

WATERPROOFING (Work Group No. 120 Unless Otherwise Stated)Pointing

- 1 Rake out 10mm jointex expansion joint filler for a depth of 10mm, prime and point with polyurethane sealant.

m

47

PROFILED METAL SHEETING AND MATCHING ACCESSORIES (Work Group No. 125 Unless Otherwise Stated)

Contractor to supply a 10 year manufacturers system warranty and a 5 year workmanship guarantee upon completion of all roof coverings and roof sundries

0,80mm Thick Zinzalume Colorplus Or Other Approved IBR Factory Painted Roofing Sheets In Single Lengths And Matching Accessories, All To Be Finished With Approved Standard Colour On Top And Underside, Fixed To Timber Purlins

- 2 Roof covering with pitch not exceeding 25 degrees.

m2

41

- 3 Standard ridge capping including broad flute serrated closers both sides.

m

12

RAINWATER GOODS (Work Group No. 148 Unless Otherwise Stated)

Watertite Guttering Or Other Approved Seamless Baked Enamel Prepainted Rolled Aluminium Profiled Rainwater Goods And Accessories Of Approved Colour Fixed In Strict Accordance With The Manufacturer's Instructions

- 4 150 x 125 x 0,8mm Ogee profile gutter fixed to fibre cement fascia with patented internal brackets at maximum 500mm centres.

m

23

- 5 Extra for stop end.

No

4

- 6 Extra for centre nozzle with outlet for 110mm diameter rainwater pipe.

No

2

Carried to Collection

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SECTION NO. 5

BILL NO. 3

WALKWAYS (PROVISIONAL)

uPVC Rainwater Goods With Solvent Cement And Clip-On Joints

1	110mm Diameter rainwater pipe and fixing clear of walls with and including aluminium holderstraps at maximum 1000mm centres fixed to and including 144 x 144 x 19mm thick wrot meranti block with rounded corners four times plugged and brass screwed to wall.	m	6
2	Extra for shoe.	No	2
3	Extra for eaves offset 700mm projection.	No	2

ROOF CONSTRUCTION (Work Group No. 126 Unless Otherwise Stated)

PREFABRICATED ROOF TRUSSES

(a) Tenderers are referred to the detail roof plans issued with these Bills of Quantities. All the roof trusses are to be at a maximum of 1100mm centres and constructed for a 25 degree pitch unless otherwise stated. Truss dimensions have been measured to the overall roof plan size.

(b) All the roof trusses to be designed and constructed with softwood structural timber to include for live loads, wind loads and to take a 0,8mm thick sheet metal roof covering on purlins and fibre cement or gypsum plasterboard ceilings with brandering. Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by CSIR approved patented galvanised metal spiked connectors, fixed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions.

(c) Unless otherwise described all rafter feet are to extend approximately 910mm beyond the length of the tie beam, with ends wrot and twice splay cut.

(d) The design, manufacture and transportation of the roof trusses, bracing, etc. shall be under the control of a registered Engineer and it shall be required from the manufacturer of the trusses to lodge a written guarantee that his construction has been designed by a qualified Structural Engineer and that he is in possession of a capability certificate issued by the Institute for Timber Construction and approved by the Representative/Agent.

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WALKWAYS (PROVISIONAL)

(e) The tenderers attention is drawn to the fact that the complete set of project drawings may be viewed at the offices of the Representative/Agent.

(f) Erection must be carried out as described in The Erection and Bracing of Timber Roof Trusses published by the Truss Plate Association of South Africa Ltd. and the National Timber Research Institute, CSIR. A certificate of compliance must be submitted to the Representative/Agent on completion of the total roof construction by a Registered Structural Engineer representing the roof truss manufacturer's.

(g) Descriptions of roof trusses shall be deemed to include for design, manufacture, supply, hoisting and fixing in position, trimming ends, notching, etc. and for any temporary bracing.

Double Pitch Prefabricated Connector Plate Roof Trusses At 1100mm Maximum Centres With A Pitch Of 25 Degrees And Suitable For 0.80mm Thick IBR Sheet Roofing With 50 x 76mm Purlins At 1050mm Centres And 6mm Thick Claddit Nailed Up Ceilings With 38 x 50mm Brandering

- | | | | |
|---|---|----|------|
| 1 | Roof construction to suit rectangular shaped covered walkway, etc. size $\pm$ 11500mm long x 1600mm wide overall complete with 700mm eaves overhangs. (Hoisting $\pm$ 2890mm high). | No | 1 |
| 2 | Temporary and permanent bracing to suit the above roof truss designs. | | Item |

SUNDRY ROOF TIMBERS (Work Group No. 126 Unless Otherwise Stated)

Sawn Softwood

- | | | | |
|---|------------------------|---|----|
| 3 | 38 x 114mm Wall plate. | m | 23 |
| 4 | 50 x 76mm Purlin. | m | 69 |

Sundries

- | | | | |
|---|---|----|----|
| 5 | Teco or other approved galvanised mild steel hurricane clip used at junction of timber trusses and purlins. | No | 60 |
|---|---|----|----|

EAVES AND VERGES (Work Group No. 129 Unless Otherwise Stated)

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<u>Everite Or Other Approved 6mm Fibre-Reinforced Cement Eaves And Verge Linings With PVC H-Profile Joining Strips</u>					
1	Sloping eaves soffit lining in approximately 700mm widths fixed to and including 38 x 50mm sawn Pine brandering at 450mm centres across sheets and along both edges, with brandering fixed to soffit of rafter overhang.	m	23		
<u>Pressed Fibre Reinforced Cement Fascia And Barge Board</u>					
2	12 x 225mm Pressed flat fascia, butt jointed with aluminium H-profile fascia joiners and twice drilled for and screwed to purlin and including 38 x 114mm Pine fixing cleat 114mm long fixed vertically to side of rafter feet at approximately 1100mm centres with two 38 x 50mm Pine fascia fixing runners to take fascia fixed to same.	m	23		
3	200 x 80mm Barge board, butt jointed with aluminium H-profile joiners, bent as required, twice drilled for and screwed to wall at approximately 500mm centres with 6mm galvanised drive screws.	m	4		
<u>NAILED UP CEILINGS (Work Group No. 129 Unless Otherwise Stated)</u>					
<u>6mm Cladit Fibre Reinforced Cement Sheets With H-Profile Joining Strips</u>					
4	Horizontal external ceilings fixed to and including 38 x 50mm sawn Pine brandering at 400mm centres in one direction and at 400mm centres in the other direction, with additional brandering at outer edges of rooms and along joints of ceiling plates.	m2	21		
5	Trim for and form trap door in fibre-cement board ceiling, size 600 x 600mm.	No	1		
<u>CORNICES, ETC (Work Group No. 129 Unless Otherwise Stated)</u>					
<u>Wrot Pine</u>					
6	50 X 70mm Twice rebated cornice on flat, fixed with 40mm wire nails at not exceeding 300mm centres.	m	69		
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WALKWAYS (PROVISIONAL)					

**PAINT ON PLASTER, FIBRE REINFORCED CEMENT,
ETC. (Work Group No. 152 Unless Otherwise
Stated)**

Prepare And Apply One Coat Alkali Resistant Plaster
Primer And Two Coats Super Matt Acrylic PVA Paint

1	On ceilings with PVC H-profile joining strips and timber cornices.	m2	37
2	On eave or verge soffit linings with PVC H-profile joining strips and timber cornices.	m2	16
3	On fascias and barge boards.	m2	13

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BILL NO. 3

WALKWAYS (PROVISIONAL)

Item No		Quantity	Rate	Amount
	<u>BILL NO. 4</u>			
	<u>WATER SUPPLY (PROVISIONAL)</u>			
	<u>TANK PLINTS AND BASES</u>			
	<u>TESTS (Work Group No. 110 Unless Otherwise Stated)</u>			
1	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	1	
	<u>EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)</u>			
	<u>Excavations</u>			
2	Excavate in earth for bases, not exceeding 2000mm deep.	m3	3	
3	Extra over excavations in earth for excavation in soft rock.	m3	1	
4	Ditto in hard rock.	m3	1	
	<u>Sundries</u>			
5	Extra over all excavations for carting away from site surplus excavated material.	m3	3	
6	Risk of collapse to sides of excavations not exceeding 1500mm deep.	m2	10	
7	Keep the excavations free of water other than subterranean and seepage water.	Item		
	<u>Filling</u>			
8	Scarify surface of ground to a depth of 150mm and compact to 93% Mod AASHTO density.	m2	9	
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	WATER SUPPLY (PROVISIONAL)			

1	150mm Compacted thickness G5 base course complying with SANS 1200 ME supplied by the Contractor and compacted to 98% Mod AASHTO density under bases.	m2	9
	<u>CONCRETE (Work Group No. 110 Unless Otherwise Stated)</u>		
	<u>Reinforced Concrete 25MPa Of 19mm Stone</u>		
2	In bases cast against excavated surfaces.	m3	3
	<u>CONCRETE SUNDRIES (Work Group No. 110 Unless Otherwise Stated)</u>		
	<u>Finish To Concrete Surface</u>		
3	Trowel bases to a smooth surface in one operation with additional mortar as required and finishing off with a stipple roller to a non-skid finish to approval.	m2	9
	<u>FORMWORK (USE AND WASTE) TO CONCRETE (Work Group No. 111 Unless Otherwise Stated)</u>		
	<u>Smooth Formwork To</u>		
4	Edges, risers, ends and reveals exceeding 300mm high or wide.	m2	11
	<u>STEEL REINFORCEMENT (Work Group No. 114 Unless Otherwise Stated)</u>		
	<u>Mild Steel Bar Reinforcement To Structural Concrete Work</u>		
5	10mm Diameter bars.	t	0.06
	<u>High Tensile Steel Bar Reinforcement To Structural Concrete Work</u>		
6	10mm Diameter bars.	t	0.09
7	12mm Diameter bars.	t	0.24
8	16mm Diameter bars.	t	0.18
9	20mm Diameter bars.	t	0.03

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 BILL NO. 4
 WATER SUPPLY (PROVISIONAL)

**STRUCTURAL STEEL WATER TANK
STRUCTURE (Work Group No. 136 Unless
Otherwise Stated)**

NOTE:

The Contractor must allow in his tender for:-

- a) Temporary struts and bracing during erection.
- b) Workshop drawings.

Steel mass will be calculated according to the tables issued by the SA Institute of Steel Construction.

**THE FOLLOWING IN HOT DIP GALVANISED MILD
STEEL FRAME STRUCTURE TO TANK STAND**

Hot Dip Galvanised Mild Steel Welded Or Bolted
Columns, Beams, Bracing, Stanchions, Stringers, Rungs
And Rails With Flat Section Connection Plates, Bolts,
Etc.

1	IPE 160 x 82mm x 15.8Kg I-beam.	t	0.25
2	R20 Rungs welded to stringers at 300mm centres.	t	0.03
3	50 x 8mm Flat hoops bend as per detail section B-B.	t	0.08
4	60 x 8mm Flat rails as per detail section B-B.	t	0.06
5	50 x 50 x 5mm L-section horizontal member.	t	0.08
6	60 x 60 x 6mm L-section cross bracing, stanchions and rails.	t	0.35
7	70 x 70 x 6mm L-section stanchion and stringers.	t	0.18
8	IPE 160 x 82mm x 15.8Kg I-beam.	t	0.24
9	280 x 280 x 10mm Flat section base plate.	No	4

**PLUMBING AND DRAINAGE (Work Group No.
148 Unless Otherwise Stated)**

RAINWATER HARVESTING

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BILL NO. 4
WATER SUPPLY (PROVISIONAL)

<u>The Following In Polyethylene Water Storage Tanks As Jojo Or Other Approved Including Setting Up In Position On Concrete Slab At Ground Level Unless Otherwise Stated</u>				
1	5000 Litre Polyethylene vertical type rainwater storage tank size 1820mm diameter x 2255mm high including connections for 110mm inlet and two 63mm outlet pipes and all joints to PVC, fitting into position, etc.	No	2	
2	10000 Litre Polyethylene vertical type rainwater storage tank size 2200mm diameter x 3150mm high including connections for 110mm inlet and two 63mm outlet pipes and all joints to PVC, fitting into position by hoisting 5000mm high to be fixed on top of steel structure, etc.	No	1	
3	Extra for ball float valve to 75mm inlet.	No	1	
<u>EXTERNAL WATER SUPPLIES</u>				
<u>High Density Polyethelene Class 12 Piping Complying With SANS 533 With Plasson Or Other Approved Compression Fittings</u>				
4	32mm Pipe laid in ground not less than 800mm deep, including excavating trench, 150mm thick sand bed under, around and for 300mm above pipe compacted to 95% Mod AASHTO density and backfilling with selected fill material compacted in 300mm layers to 95% Mod AASHTO density with surplus material carted away.	m	30	
5	50mm Ditto.	m	23	
<u>Extra Over High Density Polyethylene Pipes For The Following Plasson Or Other Approved Compression Fittings</u>				
6	32mm Bend.	No	4	
7	50mm Bend.	No	3	
8	50 x 32mm Reducer.	No	3	
9	50 x 50 x 32mm Tee reducer.	No	3	
10	75 x 75 x 50mm Tee reducer.	No	1	
11	Cement concrete (15 MPa) thrust block (approximately 0,05 cubic metres) at bends, etc.	No	14	
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BILL NO. 4				
WATER SUPPLY (PROVISIONAL)				

Cast Brass

1	42mm Gate valve with couplings to copper.	No	1
---	---	----	---

2	54mm Fullway gate valve as Cobra 1002/125 with two adaptors and joints to copper.	No	1
---	---	----	---

Pumps, Filters And Meters Etc

3	Standard Kent or other approved water meter for a 50mm diameter pipe complete, including connections etc.	No	1
---	---	----	---

4	Arkel or other approved reusable and cleanable water filter for a 50mm diameter pipe complete, including connections etc.	No	1
---	---	----	---

5	Grundfos CR 3-9 A-FGJ-A-E-HQQE or other approved pump complete, including connections etc.	No	1
---	--	----	---

Connecting Into Existing Water Supply

6	Locate, excavate and connect into existing 75mm existing water supply, with and including all necessary fittings and connections.	No	1
---	---	----	---

THE FOLLOWING BUDGETARY ALLOWANCES ARE FOR WORK TO BE CARRIED OUT BY THE MAIN CONTRACTOR AND REMEASURED USING BILL RATES

7	Provide the sum of R15.000,00 (Ten Thousand Rand) for Connection To Existing Water Main Supply supplied and installed complete.	Item	15 000.00
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8	Provide the sum of R20.000,00 (Twenty Thousand Rand) for Solar Panels supplied and installed complete.	Item	20 000.00
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9	Provide the sum of R180.000,00 (One Hundred and Eighty Thousand Rand) for Borehole Drilling and Acquirer Testing supplied and installed complete.	Item	180 000.00
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WATER SUPPLY (PROVISIONAL)

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WATER SUPPLY (PROVISIONAL)

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BILL NO. 4

WATER SUPPLY (PROVISIONAL)

Item No		Quantity	Rate	Amount
<u>BILL NO. 5</u>				
<u>SOIL DRAINAGE (PROVISIONAL)</u>				
<u>SOIL DRAINAGE(Work Group No. 146 Unless Otherwise Stated)</u>				
<u>uPVC Class 34 Drainage Pipes And Fittings With Spigot And Socket Joints With O Ring Seals Complying With SABS 791</u>				
1	110mm Pipe and fixing vertically (no excavation).	m	4	
2	110mm Pipe and laying in ground including excavating trench not exceeding 1m deep, 150mm thick sand bed under, around and for 300mm above pipe compacted to 93% Mod AASHTO density and backfilling of selected fill material compacted in 300mm layers to 93% Mod AASHTO density with surplus material spread and levelled on site.	m	64	
3	110mm Ditto exceeding 1m and not exceeding 2m deep, ditto.	m	41	
<u>Extra Over uPVC Drain Pipes For The Following uPVC Fittings</u>				
4	110mm Bend.	No	11	
5	110mm Junction.	No	11	
6	110mm Stop end.	No	7	
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SECTION NO. 5 BILL NO. 5 SOIL DRAINAGE (PROVISIONAL)				

Sundries

1	Excavate for and build manhole size 1690 x 1690mm x not exceeding 750mm deep internally formed of one brick sides in extra hard burnt stock bricks in 4-1 cement mortar on 150mm cement concrete (21MPa) bottom with 100mm thick cement concrete (21MPa) slab over, finished on exposed surfaces in untinted granolithic with angles rounded with rebated opening for and including airt-Gabion Type 90 or other approved manhole frame and cover; render sides internally in 3-1 cement plaster and bench up bottom in fine concrete (21MPa) finished smooth in 1-1 plaster including 160mm straight channel, channel bends, junctions, holes, etc. with surplus material spread and levelled on site.	No	2
2	Ditto, but exceeding 1500mm and not exceeding 1750mm deep.	No	2
3	Cut joint size 30mm wide x 40mm long across bottom of 110mm diameter pipe.	No	24
4	100mm Diameter cast iron 45 degree ABC rodding eye cover and frame and joint to 110mm diameter uPVC pipe, including adaptor.	No	1
5	Cement concrete (15 MPa) casing of a minimum thickness of 100mm around 110mm pipe under building, including necessary formwork.	m	29
6	Precast cement concrete (20 MPa) block, size 350 x 350 x 75mm thick, finished smooth on top and sides with I.E. formed in top and set in flush with ground, including formwork.	No	1

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 SOIL DRAINAGE (PROVISIONAL)

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SOIL DRAINAGE (PROVISIONAL)

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BILL NO. 5

SOIL DRAINAGE (PROVISIONAL)

Item No		Quantity	Rate	Amount
<u>BILL NO. 6</u>				
<u>STORMWATER DRAINAGE (PROVISIONAL)</u>				
<u>STORMWATER DISPOSAL(Work Group No. 110 Unless Otherwise Stated)</u>				
<u>Surface Water Channels</u>				
1	Cement concrete (20 MPa) open surface water channel 900mm wide and 175mm high overall with V- channel formed in same and all as before described.	m	108	
2	Extra for angle.	No	9	
3	Extra for T-junction.	No	2	
4	Extra for ends.	No	3	
<u>Spilling Basins To Ends Of Channels</u>				
5	Excavate in earth for downstand to bases and stone packing (Work Group No 104).	m3	2	
6	200mm Thick (average) stone bed, formed of stones 150mm to 200mm diameter, laid in excavation and packed loosely at end of spilling basin (Work Group No 104).	m2	5	
7	Cement concrete (20 MPa) in bases, upstand and downstands (Work Group No 110).	m3	1	
8	Float top surfaces of bases to a smooth, even surface while still wet, including any additional mortar if required (Work Group No 110).	m2	5	
9	Form pocket in top of concrete base for brick insert, size approximately 220 x 75 x 50mm deep (Work Group No 110).	No	52	
10	Formwork (use and waste) to sides of upstands not exceeding 300mm high (Work Group No 111).	m	9	
11	Hard burnt stock brick, set on edge in top of concrete base 50mm deep and bed in 3-1 cement mortar (pocket elsewhere measured) (Work Group No 116).	No	52	
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BILL NO. 6				
STORMWATER DRAINAGE (PROVISIONAL)				

1	One coat 4-1 cement plaster on concrete walls not exceeding 300mm wide (Work Group No 142).	m2	5
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STORMWATER DRAINAGE (PROVISIONAL)

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BILL NO. 6

STORMWATER DRAINAGE (PROVISIONAL)

	<u>En-Suite Locks, Etc.</u>				
1	Union UN335000000210MK or other approved 50mm stainless steel padlock shackle.	No	1		
	<u>ENTRANCE WALL STRUCTURE</u>				
	<u>TESTS (Work Group No. 110 Unless Otherwise Stated)</u>				
2	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	1		
	<u>EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)</u>				
	<u>Excavations</u>				
3	Excavate in earth for surface trenches, not exceeding 2000mm deep.	m3	8		
4	Excavate in earth for bases, not exceeding 2000mm deep.	m3	9		
5	Extra over excavations in earth for excavation in soft rock.	m3	5		
6	Ditto in hard rock.	m3	3		
	<u>Sundries</u>				
7	Extra over all excavations for carting away from site surplus excavated material.	m3	17		
8	Risk of collapse to sides of excavations not exceeding 1500mm deep.	m2	58		
9	Keep the excavations free of water other than subterranean and seepage water.			Item	
	<u>Filling</u>				
10	Approved G5 filling, supplied by the Contractor compacted in multiple layers not exceeding 150mm thick to 95% Mod AASHTO density in backfilling to trenches, bases, etc.	m3	11		
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	BILL NO. 7				
	FENCING AND ENTRANCE STRUCTURES (PROVISIO				

CONCRETE (Work Group No. 110 Unless Otherwise Stated)Plain Concrete 10MPa Of 19mm Stone

1	In blinding cast against excavated surfaces.	m3	1
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Plain Concrete 25MPa Of 12mm Stone

2	In filling to cavities of hollow piers.	m3	1
---	---	----	---

Plain Concrete 25MPa Of 19mm Stone

3	In footings cast against excavated surfaces.	m3	2
---	--	----	---

4	In bases cast against excavated surfaces.	m3	2
---	---	----	---

BRICKWORK (Work Group No. 116 Unless Otherwise Stated)Brickwork In Burnt Clay NFP Bricks In Class II Mortar

5	One brick wall including ties.	m2	23
---	--------------------------------	----	----

6	340 x 340mm Brick pier formed of half brick thickness with 110 x 110mm void in centre filled in with cement concrete (concrete elsewhere measured).	m	20
---	---	---	----

Brick Reinforcement

7	Galvanised high tensile wire welded fabric reinforcement 150mm wide and built into one brick wall and lintols, well lapped at angles and intersections.	m	91
---	---	---	----

EXTERNAL FACINGS (Work Group No. 116 Unless Otherwise Stated)External FBS Face Bricks (PC Supply Cost Of R7000.00 Per Thousand Delivered To Site Excluding Vat) Pointed With Ruled-In Vertical And Horizontal Joints

8	Extra over ordinary brickwork for facing in stretcher bond and pointing with a square recessed joint.	m2	45
---	---	----	----

9	Brick on edge roller course coping to top of one brick wall, bedded and jointed in 3-1 cement mortar and pointed on top and both sides with a square recessed joint.	m	7
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BILL NO. 7

FENCING AND ENTRANCE STRUCTURES (PROVISIO

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FENCING AND ENTRANCE STRUCTURES (PROVISIONAL)

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BILL NO. 7

FENCING AND ENTRANCE STRUCTURES (PROVISIO

Item No		Quantity	Rate	Amount
	<u>BILL NO. 8</u>			
	<u>PLAY AREA (PROVISIONAL)</u>			
	<u>SAND PIT</u>			
	<u>TESTS (Work Group No. 110 Unless Otherwise Stated)</u>			
1	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	3	
	<u>EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)</u>			
	<u>Excavations</u>			
2	Excavate in earth to reduce levels under ground, not exceeding 2000mm deep.	m3	8	
3	Excavate in earth for surface trenches, not exceeding 2000mm deep.	m3	9	
4	Excavate in earth for bases, not exceeding 2000mm deep.	m3	2	
5	Extra over excavations in earth for excavation in soft rock.	m3	2	
6	Ditto in hard rock.	m3	1	
	<u>Sundries</u>			
7	Extra over all excavations for carting away from site surplus excavated material.	m3	19	
8	Risk of collapse to sides of excavations not exceeding 1500mm deep.	m2	36	
9	Keep the excavations free of water other than subterranean and seepage water.	Item		
	Carried to Collection			R
	SECTION NO. 5			
	BILL NO. 8			
	PLAY AREA (PROVISIONAL)			

	<u>Filling</u>				
1	Scarify surface of ground to a depth of 150mm and compact to 93% Mod AASHTO density.	m2	13		
2	150mm Compacted thickness G5 base course complying with SANS 1200 ME supplied by the Contractor and compacted to 98% Mod AASHTO density under solid floors.	m2	13		
3	Approved G5 filling, supplied by the Contractor compacted in multiple layers not exceeding 150mm thick to 95% Mod AASHTO density in backfilling to trenches, bases, etc.	m3	6		
4	Selected clean river sand supplied by the Contractor and approved by the Principal Agent, including placing in sand pit.	m3	6		
	<u>CONCRETE (Work Group No. 110 Unless Otherwise Stated)</u>				
	<u>Plain Concrete 25MPa Of 12mm Stone</u>				
5	In filling to cavities of hollow piers.	m3	1		
	<u>Plain Concrete 25MPa Of 19mm Stone</u>				
6	In footings cast against excavated surfaces.	m3	2		
7	In bases cast against excavated surfaces.	m3	1		
8	In ground floor slab.	m3	13		
	<u>CONCRETE SUNDRIES (Work Group No. 110 Unless Otherwise Stated)</u>				
	<u>Movement Joints</u>				
9	10mm Jointex joint filler not exceeding 300mm wide between brick and concrete surfaces.	m	17		
	<u>BRICKWORK (Work Group No. 116 Unless Otherwise Stated)</u>				
	<u>Brickwork In Burnt Clay NFP Bricks In Class II Mortar</u>				
10	One brick wall including ties.	m2	8		
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	SECTION NO. 5 BILL NO. 8 PLAY AREA (PROVISIONAL)				

1	One brick wall including ties, slightly curved and circular on plan.	m2	16	
2	270 x 270mm Attached brick pier formed of half brick thickness with 50 x 50mm void in centre filled in with cement concrete (concrete elsewhere measured).	m	15	
	<u>Brick Reinforcement</u>			
3	Galvanised high tensile wire welded fabric reinforcement 150mm wide and built into one brick wall and lintols, well lapped at angles and intersections.	m	72	
	<u>EXTERNAL FACINGS (Work Group No. 116 Unless Otherwise Stated)</u>			
	Golden Wheat Travertine FBX (or similar approved) solid brick on sill ends			
4	Extra over ordinary brickwork for facing in stretcher bond and pointing.	m2	12	
5	Extra over ordinary brickwork for facing in stretcher bond and pointing, in narrow widths to brick piers.	m2	14	
6	Extra over ordinary brickwork for facing in stretcher bond and pointing, slightly curved and circular on plan.	m2	21	
7	Brick on edge coping with bull-nose to top of one brick wall and pointing to all exposed sides.	m	4	
8	Brick on edge coping with bull-nose to top of one brick wall and pointing to all exposed sides, slightly curved and circular on plan.	m	11	
9	Brick on edge coping to top of 270 x 270mm brick piers, including cutting and pointing to all exposed sides.	No	4	
	<u>WATERPROOFING (Work Group No. 120 Unless Otherwise Stated)</u>			
	<u>Pointing</u>			
10	Rake out 10mm jointex expansion joint filler for a depth of 10mm, prime and point with polyurethane sealant.	m	17	
	<u>COVERED PLAY AREA</u>			
	Carried to Collection			R
	SECTION NO. 5			
	BILL NO. 8			
	PLAY AREA (PROVISIONAL)			

TESTS (Work Group No. 110 Unless Otherwise Stated)

- 1 Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.

Sets

1

EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)**Excavations**

- 2 Excavate in earth to reduce levels under ground, not exceeding 2000mm deep.
- 3 Excavate in earth for surface trenches, not exceeding 2000mm deep.
- 4 Extra over excavations in earth for excavation in soft rock.
- 5 Ditto in hard rock.

m3

2

m3

6

m3

1

m3

1

Sundries

- 6 Extra over all excavations for carting away from site surplus excavated material.
- 7 Risk of collapse to sides of excavations not exceeding 1500mm deep.
- 8 Keep the excavations free of water other than subterranean and seepage water.

m3

6

m2

18

Item

Filling

- 9 Scarify surface of ground to a depth of 150mm and compact to 93% Mod AASHTO density.
- 10 150mm Compacted thickness G5 base course complying with SANS 1200 ME supplied by the Contractor and compacted to 98% Mod AASHTO density under solid floors.
- 11 Approved G5 filling, supplied by the Contractor compacted in multiple layers not exceeding 150mm thick to 95% Mod AASHTO density in backfilling to trenches, bases, etc.

m2

16

m2

16

m3

2

Carried to Collection**R**

SECTION NO. 5
BILL NO. 8
PLAY AREA (PROVISIONAL)

CONCRETE (Work Group No. 110 Unless Otherwise Stated)Plain Concrete 25MPa Of 19mm Stone

1	In footings cast against excavated surfaces.	m3	3
2	In ground floor slab.	m3	2

CONCRETE SUNDRIES (Work Group No. 110 Unless Otherwise Stated)Movement Joints

3	10mm Jointex joint filler not exceeding 300mm wide between brick and concrete surfaces.	m	18
---	---	---	----

BRICKWORK (Work Group No. 116 Unless Otherwise Stated)Brickwork In Burnt Clay NFP Bricks In Class II Mortar

4	One brick wall including ties.	m2	37
---	--------------------------------	----	----

Brickwork Sundries

5	Turning piece to brick lintol not exceeding 300mm wide on soffit.	m	10
6	1,6mm Thick x 32mm wide x 1500mm long galvanised hoop iron truss tie with one end built 750mm deep into brickwork and other end wrapped over truss and spiked to roof timbers.	No	16

Brick Reinforcement

7	Galvanised high tensile wire welded fabric reinforcement 150mm wide and built into one brick wall and lintols, well lapped at angles and intersections.	m	167
---	---	---	-----

EXTERNAL FACINGS (Work Group No. 116 Unless Otherwise Stated)

Golden Wheat Travertine FBX (or similar approved) solid brick on sill ends

8	Extra over ordinary brickwork for facing in stretcher bond and pointing.	m2	79
---	--	----	----

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 BILL NO. 8
 PLAY AREA (PROVISIONAL)

1	Brick on edge lintol to soffit to one brick wall opening and pointing to all exposed sides.	m	10		
2	Brick on edge coping with bull-nose to top of one brick wall and pointing to all exposed sides.	m	10		
<u>WATERPROOFING (Work Group No. 120 Unless Otherwise Stated)</u>					
<u>Pointing</u>					
3	Rake out 10mm jointex expansion joint filler for a depth of 10mm, prime and point with polyurethane sealant.	m	18		
<u>PROFILED METAL SHEETING AND MATCHING ACCESSORIES (Work Group No. 125 Unless Otherwise Stated)</u>					
Contractor to supply a 10 year manufacturers system warranty and a 5 year workmanship guarantee upon completion of all roof coverings and roof sundries					
<u>0,80mm Thick Zinzalume Colorplus Or Other Approved IBR Factory Painted Roofing Sheets In Single Lengths And Matching Accessories, All To Be Finished With Approved Standard Colour On Top And Underside, Fixed To Timber Purlins</u>					
4	Roof covering with pitch not exceeding 25 degrees.	m2	40		
5	Standard hip capping, including broad flute serrated closers both sides.	m	18		
6	Junction of four hips.	No	1		
<u>RAINWATER GOODS (Work Group No. 148 Unless Otherwise Stated)</u>					
<u>Watertite Guttering Or Other Approved Seamless Baked Enamel Prepainted Rolled Aluminium Profiled Rainwater Goods And Accessories Of Approved Colour Fixed In Strict Accordance With The Manufacturer's Instructions</u>					
7	150 x 125 x 0,8mm Ogee profile gutter fixed to fibre cement fascia with patented internal brackets at maximum 500mm centres.	m	24		
8	Extra for external angle.	No	4		
Carried to Collection				R	
SECTION NO. 5					
BILL NO. 8					
PLAY AREA (PROVISIONAL)					

1	Extra for centre nozzle with outlet for 110mm diameter rainwater pipe.	No	2
	<u>uPVC Rainwater Goods With Solvent Cement And Clip-On Joints</u>		
2	110mm Diameter rainwater pipe and fixing clear of walls with and including aluminium holderstraps at maximum 1000mm centres fixed to and including 144 x 144 x 19mm thick wrot meranti block with rounded corners four times plugged and brass screwed to wall.	m	6
3	Extra for shoe.	No	2
4	Extra for eaves offset 700mm projection.	No	2

ROOF CONSTRUCTION (Work Group No. 126 Unless Otherwise Stated)

PREFABRICATED ROOF TRUSSES

(a) Tenderers are referred to the detail roof plans issued with these Bills of Quantities. All the roof trusses are to be at a maximum of 1100mm centres and constructed for a 25 degree pitch unless otherwise stated. Truss dimensions have been measured to the overall roof plan size.

(b) All the roof trusses to be designed and constructed with softwood structural timber to include for live loads, wind loads and to take a 0,8mm thick sheet metal roof covering on purlins and fibre cement or gypsum plasterboard ceilings with brandering. Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by CSIR approved patented galvanised metal spiked connectors, fixed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions.

(c) Unless otherwise described all rafter feet are to extend approximately 910mm beyond the length of the tie beam, with ends wrot and twice splay cut.

(d) The design, manufacture and transportation of the roof trusses, bracing, etc. shall be under the control of a registered Engineer and it shall be required from the manufacturer of the trusses to lodge a written guarantee that his construction has been designed by a qualified Structural Engineer and that he is in possession of a capability certificate issued by the Institute for Timber Construction and approved by the Representative/Agent.

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SECTION NO. 5
BILL NO. 8
PLAY AREA (PROVISIONAL)

(e) The tenderers attention is drawn to the fact that the complete set of project drawings may be viewed at the offices of the Representative/Agent.

(f) Erection must be carried out as described in The Erection and Bracing of Timber Roof Trusses published by the Truss Plate Association of South Africa Ltd. and the National Timber Research Institute, CSIR. A certificate of compliance must be submitted to the Representative/Agent on completion of the total roof construction by a Registered Structural Engineer representing the roof truss manufacturer's.

(g) Descriptions of roof trusses shall be deemed to include for design, manufacture, supply, hoisting and fixing in position, trimming ends, notching, etc. and for any temporary bracing.

Double Pitch Prefabricated Connector Plate Roof Trusses At 1100mm Maximum Centres With A Pitch Of 25 Degrees And Suitable For 0.80mm Thick IBR Sheet Roofing With 50 x 76mm Purlins At 1050mm Centres And 6mm Thick Claddit Nailed Up Ceilings With 38 x 50mm Brandering

- | | | | |
|---|---|----|------|
| 1 | Roof construction to suit square shaped roof for undercover play area, etc. size $\pm$ 4200mm long x 4200mm wide overall complete with 700mm eaves overhangs. (Hoisting $\pm$ 2900mm high). | No | 1 |
| 2 | Temporary and permanent bracing to suit the above roof truss designs. | | Item |

SUNDRY ROOF TIMBERS (Work Group No. 126 Unless Otherwise Stated)

Sawn Softwood

- | | | | |
|---|---------------------------|---|----|
| 3 | 38 x 114mm Wall plate. | m | 18 |
| 4 | 50 x 76mm Purlin. | m | 24 |
| 5 | 50 x 76mm Purlin to hips. | m | 35 |

Sundries

- | | | | |
|---|---|----|----|
| 6 | Teco or other approved galvanised mild steel hurricane clip used at junction of timber trusses and purlins. | No | 64 |
|---|---|----|----|

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PLAY AREA (PROVISIONAL)

R

EAVES AND VERGES (Work Group No. 129 Unless Otherwise Stated)Everite Or Other Approved 6mm Fibre-Reinforced Cement Eaves And Verge Linings With PVC H-Profile Joining Strips

- | | | | |
|---|--|---|----|
| 1 | Sloping eaves soffit lining in approximately 700mm widths fixed to and including 38 x 50mm sawn Pine brandering at 450mm centres across sheets and along both edges, with brandering fixed to soffit of rafter overhang. | m | 24 |
|---|--|---|----|

Pressed Fibre Reinforced Cement Fascia And Barge Board

- | | | | |
|---|--|---|----|
| 2 | 12 x 225mm Pressed flat fascia, butt jointed with aluminium H-profile fascia joiners and twice drilled for and screwed to purlin and including 38 x 114mm Pine fixing cleat 114mm long fixed vertically to side of rafter feet at approximately 1100mm centres with two 38 x 50mm Pine fascia fixing runners to take fascia fixed to same. | m | 24 |
|---|--|---|----|

NAILED UP CEILINGS (Work Group No. 129 Unless Otherwise Stated)6mm Cladit Fibre Reinforced Cement Sheets With H-Profile Joining Strips

- | | | | |
|---|--|----|----|
| 3 | Horizontal external ceilings fixed to and including 38 x 50mm sawn Pine brandering at 400mm centres in one direction and at 400mm centres in the other direction, with additional brandering at outer edges of rooms and along joints of ceiling plates. | m2 | 16 |
| 4 | Trim for and form trap door in fibre-cement board ceiling, size 600 x 600mm. | No | 1 |

CORNICES, ETC (Work Group No. 129 Unless Otherwise Stated)Wrot Pine

- | | | | |
|---|---|---|----|
| 5 | 50 X 70mm Twice rebated cornice on flat, fixed with 40mm wire nails at not exceeding 300mm centres. | m | 60 |
|---|---|---|----|

SCREEDS (Work Group No. 142 Unless Otherwise Stated)

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 PLAY AREA (PROVISIONAL)

	<u>Screeds In 3-1 Cement Mortar On Concrete, Finished Smooth With A Steel Trowel To Receive Floor Finishes (Elsewhere Measured)</u>			
1	45mm Average thick screed to floors to receive non slip porcelain floor tiles.	m2	16	
	<u>TILING (Work Group No. 144 Unless Otherwise Stated)</u>			
	<u>Supply Only Non Slip Porcelain Floor Tiles PC R250.00 (Two Hundred And Fifty Rand) Per Square Metre Net Including All Necessary Waste (Rate To Include For Waste) (Area Measured Is Net Area Of Tiling)</u>			
2	On floors.	m2	16	
	<u>Take Delivery, Store Until Required And Fix 600 x 600mm Non Slip Porcelain Tiles (Supply Of Tiles Elsewhere Measured) To Screeded Surface Unless Otherwise Described With Approved Porcelain Tile Adhesive And Jointed And Pointed With Flush Joints With Approved Grout</u>			
3	On floors.	m2	16	
	<u>PAINT ON PLASTER, FIBRE REINFORCED CEMENT, ETC. (Work Group No. 152 Unless Otherwise Stated)</u>			
	<u>Prepare And Apply One Coat Alkali Resistant Plaster Primer And Two Coats Super Matt Acrylic PVA Paint</u>			
4	On ceilings with PVC H-profile joining strips and timber cornices.	m2	16	
5	On eave or verge soffit linings with PVC H-profile joining strips and timber cornices.	m2	17	
6	On fascias and barge boards.	m2	11	

JUNGLE GYM**TIMBER JUNGLE GYM (Work Group No. 126 Unless Otherwise Stated)**

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 BILL NO. 8
 PLAY AREA (PROVISIONAL)

<u>Tanolith Treated Timber Jungle Gym</u>					
1	Jungle gym formed of platform size 1800 x 1800mm with 95% UV protected shade cloth roof, handrails with nylon cargo net on three sides, swing with 125mm diameter main post, two 100mm diameter stays, two tyre swings secured with suitable thickness galvanised chain and eye bolt system, 3000mm glass fibre slide and 3600mm long suspended bridge, complete, etc. and fixed together with stainless steel flat washers and nuts, all timber posts fixed or planted as per manufacturers specifications, all to be installed by an approved installer.	No	1		
<u>DRINKING FOUNTAIN</u>					
<u>TESTS (Work Group No. 110 Unless Otherwise Stated)</u>					
2	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	1		
<u>EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)</u>					
<u>Excavations</u>					
3	Excavate in earth for bases, not exceeding 2000mm deep.	m3	1		
4	Extra over excavations in earth for excavation in soft rock.	m3	1		
5	Ditto in hard rock.	m3	1		
<u>Sundries</u>					
6	Extra over all excavations for carting away from site surplus excavated material.	m3	1		
7	Risk of collapse to sides of excavations not exceeding 1500mm deep.	m2	4		
8	Keep the excavations free of water other than subterranean and seepage water.			Item	
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PLAY AREA (PROVISIONAL)					

	<u>Filling</u>				
1	Approved G5 filling, supplied by the Contractor compacted in multiple layers not exceeding 150mm thick to 95% Mod AASHTO density in backfilling to trenches, bases, etc.	m3	1		
	<u>CONCRETE (Work Group No. 110 Unless Otherwise Stated)</u>				
	<u>Plain Concrete 25MPa Of 12mm Stone</u>				
2	In filling to cavities of hollow piers.	m3	1		
	<u>Plain Concrete 25MPa Of 19mm Stone</u>				
3	In bases cast against excavated surfaces.	m3	1		
	<u>BRICKWORK (Work Group No. 116 Unless Otherwise Stated)</u>				
	<u>Brickwork In Burnt Clay NFP Bricks In Class II Mortar</u>				
4	340 x 340mm Brick pier formed of half brick thickness with 120 x 120mm void in centre filled in with cement concrete (concrete elsewhere measured).	m	1		
	<u>Brick Reinforcement</u>				
5	Galvanised high tensile wire welded fabric reinforcement 75mm wide and built into half brick wall and lintols, well lapped at angles and intersections.	m	4		
	<u>EXTERNAL FACINGS (Work Group No. 116 Unless Otherwise Stated)</u>				
	Golden Wheat Travertine FBX (or similar approved) solid brick on sill ends				
6	Extra over ordinary brickwork for facing in stretcher bond and pointing.	m2	1		
7	Brick on edge dished formed coping to top of 340 x 340mm brick piers, including cutting forming dished slope and pointing to all exposed sides.	No	1		
	<u>WATER SUPPLIES (Work Group No. 148 Unless Otherwise Stated)</u>				
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IPS Or Other Approved Threaded Union System Plastic
Water Supply Pipes Installed In Strict Accordance With
The Manufacturer's Instructions

1	20mm Water supply pipe.	m	5
2	Extra for 20mm fittings.	No	6
3	20mm Valve with couplings to IPS pipe.	No	1
4	20mm Cobra No 108LK, or other approved brass hose bib tap with lock shield and couplings to IPS pipe.	No	1

**SANITARY PLUMBING (Work Group No. 148 Unless
Otherwise Stated)**

Rigid PVC Soil And Waste Pipes Complying With SABS
967

5	40mm Pipe fixed to wall.	m	5
6	Extra for 40mm inspection eye bend.	No	2
7	40mm P-trap fixed to brick pier, jointed to 40mm waste pipe, including adaptor and couplings.	No	1
8	40mm Flat grating to drinking trough channel trap and fixing to top of PVC trap.	No	1

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PLAY AREA (PROVISIONAL)

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PLAY AREA (PROVISIONAL)

SECTION SUMMARY - EXTERNAL WORKS TO GRADE R AND UNISEX ABLU			
Bill No		Page No	Amount
1	ALTERATIONS (PROVISIONAL)	79	
2	HOARDING, PLATFORM AND SITE PREPARATION (PROVISIONAL)	82	
3	WALKWAYS (PROVISIONAL)	91	
4	WATER SUPPLY (PROVISIONAL)	97	
5	SOIL DRAINAGE (PROVISIONAL)	100	
6	STORMWATER DRAINAGE (PROVISIONAL)	103	
7	FENCING AND ENTRANCE STRUCTURES (PROVISIONAL)	107	
8	PLAY AREA (PROVISIONAL)	121	
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	<u>BILL NO. 2</u>			
	<u>WALKWAYS (PROVISIONAL)</u>			
	<u>WALKWAYS AND RAMPS</u>			
	<u>TESTS (Work Group No. 110 Unless Otherwise Stated)</u>			
1	Provide and have a set of three concrete test cubes size 150 x 150 x 150mm overall tested at an approved Engineer's Laboratory and deliver the results to the Representative/Agent within 24 hours of the tests being completed.	Sets	1	
	<u>EARTHWORKS (Work Group No. 104 Unless Otherwise Stated)</u>			
	<u>Excavations</u>			
2	Excavate in earth to reduce levels under ground, not exceeding 2000mm deep.	m3	10	
3	Excavate in earth to form slab thickening, not exceeding 2000mm deep.	m3	3	
4	Extra over excavations in earth for excavation in soft rock.	m3	1	
5	Ditto in hard rock.	m3	1	
	<u>Sundries</u>			
6	Extra over all excavations for carting away from site surplus excavated material.	m3	13	
7	Keep the excavations free of water other than subterranean and seepage water.	Item		
	<u>Filling</u>			
8	Scarify surface of ground to a depth of 150mm and compact to 93% Mod AASHTO density.	m2	64	
9	150mm Compacted thickness G5 base course complying with SANS 1200 ME supplied by the Contractor and compacted to 98% Mod AASHTO density under solid floors.	m2	64	
	Carried to Collection			
	SECTION NO. 6			
	BILL NO. 2			
	WALKWAYS (PROVISIONAL)			

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CONCRETE (Work Group No. 110 Unless Otherwise Stated)Plain Concrete 25MPa Of 19mm Stone

1	In ramps cast with panels not exceeding 2m2.	m3	6
---	--	----	---

CONCRETE SUNDRIES (Work Group No. 110 Unless Otherwise Stated)Finish To Concrete Surface

2	Trowel ramps to a smooth surface in one operation with additional mortar as required and finishing off with a stipple roller to a non-skid finish to approval.	m2	64
---	--	----	----

Movement Joints

3	10mm Jointex joint filler not exceeding 300mm wide between brick and concrete surfaces.	m	87
---	---	---	----

FORMWORK (USE AND WASTE) TO CONCRETE (Work Group No. 111 Unless Otherwise Stated)Rough Formwork To

4	Edges, risers, ends and reveals not exceeding 300mm high or wide.	m	131
---	---	---	-----

Boxing In Rough Formwork To Form

5	250mm Wide x 120mm high horizontal recess to top edge of raft surface bed, etc.	m	58
---	---	---	----

STEEL REINFORCEMENT (Work Group No. 114 Unless Otherwise Stated)Fabric Reinforcement To Concrete Work

6	Welded high tensile steel fabric mesh reinforcement, Reference No. 245 (2.45 kg/m2) laid in concrete, including laps and spacer blocks (measured net).	m2	64
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EXTERNAL FACINGS (Work Group No. 116 Unless Otherwise Stated)

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BILL NO. 2
WALKWAYS (PROVISIONAL)

- 1 Brick on edge roller course coping with bull-nose to recess in edge of concrete slab, bedded and jointed in 3-1 cement mortar and pointed on top and one side with a square recessed joint.

m

58

WATERPROOFING (Work Group No. 120 Unless Otherwise Stated)

Pointing

- 2 Rake out 10mm jointex expansion joint filler for a depth of 10mm, prime and point with polyurethane sealant.

m

87

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WALKWAYS (PROVISIONAL)

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WALKWAYS (PROVISIONAL)

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BILL NO. 2

WALKWAYS (PROVISIONAL)

Item No	Quantity	Rate	Amount
<u>BILL NO. 3</u>			
<u>FENCING (PROVISIONAL)</u>			
<u>HIGH LEVEL SECURITY FENCING (CLASS A)</u>			
<u>Excavations (Work Group No. 104 Unless Otherwise Stated)</u>			
1	Excavate in earth for surface trenches, not exceeding 2000mm deep.	m3	182
2	Excavate in earth for bases, not exceeding 2000mm deep.	m3	29
3	Extra over excavations in earth for excavation in soft rock.	m3	21
4	Ditto in hard rock.	m3	11
<u>Sundries (Work Group No. 104 Unless Otherwise Stated)</u>			
5	Extra over all excavations for carting away from site surplus excavated material.	m3	211
6	Risk of collapse to sides of excavations not exceeding 1500mm deep.	m2	1 507
7	Keep the excavations free of water other than subterranean and seepage water.	Item	
<u>Filling (Work Group No. 104 Unless Otherwise Stated)</u>			
8	Approved G5 filling, supplied by the Contractor compacted in multiple layers not exceeding 150mm thick to 95% Mod AASHTO density in backfilling to trenches, bases, etc.	m3	182
<u>Plain Concrete 25MPa Of 19mm Stone (Work Group No. 110 Unless Otherwise Stated)</u>			
9	In bases cast against excavated surfaces.	m3	29
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SECTION NO. 6			
BILL NO. 3			
FENCING (PROVISIONAL)			

<u>Mesh Galvanised Then Fusion Bond powder coated Posts (Work Group No. 136 Unless Otherwise Stated)</u>				
1	Taper locking post 85mm wide tapering to 45mm with a depth of 85mm, 3000mm long incl. Locking Recess Mechanism to secure panel, posts sealed with a UV stabilized polymer cap. Posts spaced at 3,390mm intervals embedded in concrete bases (measured elsewhere).	No	307	
<u>Mesh Galvanised then Fusion Bond powder coated Fencing (Work Group No. 136 Unless Otherwise Stated)</u>				
2	Fencing Panels 3305 x 2400mm high formed of 3.5mm coated wire, wire aperture size (centers) @ 76.2mm x 12.7mm. Panel reinforced with 4 x 50mm deep 'V' formation horizontal recessed bands, (rigidity). 2 x 75mm 70deg flanges along sides (internal fixtures - anti vandal). Allow for flush post and panel finish, 48 line wire secure connection, Locking recess mechanism and 1 x 90deg flange along top and 1 x 30deg flange toe (arrow-straight edges, intergrated angle). Include mechanically galvanised single bolt comb clamps, double bolt comb clamps and tech-bolts. Panels fixed to Taper Locking Post (measured elsewhere).	No	306	
3	Extra Over the above Fencing Panels for adjusting panel size to suit slope of ground.	No	122	
<u>Gates (Work Group No. 136 Unless Otherwise Stated)</u>				
4	Single leaf Security fence swing gate, size 3200 x 2100mm high including spikes, formed of 3mm dia Galvanised wire with aperture size (centers) 76.2mm x 12.7mm. Mesh Galvanised, then Marine Fusion Bond coated (acid modified). All connections and joints shall be welded to form rigid frames or assembled with corner fittings. Hinges shall not twist or turn under the action of the gate and shall be so arranged that a closed gate cannot be lifted off the hinges to obtain entry. Include union padlock No 3122.	No	1	
5	Double leaf Security fence swing gate, size 5000 x 2100mm high including spikes, formed of 3mm dia Galvanised wire with aperture size (centers) 76.2mm x 12.7mm. Mesh Galvanised, then Marine Fusion Bond coated (acid modified). All connections and joints shall be welded to form rigid frames or assembled with corner fittings. Hinges shall not twist or turn under the action of the gate and shall be so arranged that a closed gate cannot be lifted off the hinges to obtain entry. Include union padlock No 3122.	No	1	
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BILL NO. 3				
FENCING (PROVISIONAL)				

Sundries (Work Group No. 136 Unless Otherwise Stated)

1	100mm high toughened steel Shark tooth Spike 1650mm long, Galvanised, then Marine Fusion Bond coated (acid modified), fixed to panel edge, internally at 150mm intervals using Anti-vandal bolts.	No	612
2	600mm Anti-Burrow mesh extension secured to the lower edge integrated angle.	m	1 010

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FENCING (PROVISIONAL)

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FENCING (PROVISIONAL)

SECTION SUMMARY - EXTERNAL WORKS TO BUBESI JUNIOR SECONDAR

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Item No		Quantity	Rate	Amount
	<u>SECTION NO. 6</u>			
	<u>PROVISIONAL SUMS</u>			
	<u>BILL NO. 1</u>			
	<u>PROVISIONAL SUMS</u>			
	<u>NOTE:</u>			
	Tenderers are advised to study the Specification of Materials and Methods to be used (PW 371) before pricing this bill.			
	All Provisional Sums are "NET" i.e. no cash discount to the Contractor is included.-----			
	<u>ELECTRICAL INSTALLATION</u>			
1	Total brought forward from Part B of Electrical installation Bill of Quantities.	Item		-
2	Allow for general attendance.	Item		
3	Allow for profit if required.	Item		
	<u>THE FOLLOWING SELECTED SUB-CONTRACT AMOUNTS ARE FOR WORK TO BE CARRIED OUT BY SELECTED SUB-CONTRACTORS IN TERMS OF CLAUSE 21 OF THE JBCC PRINCIPAL BUILDING AGREEMENT</u>			
4	Provide the sum of R60.000,00 (Sixty Thousand Rand) for Gas Installation to Kitchen and Gas Cage supplied and fixed complete.	Item		60 000.00
5	Allow for general attendance.	Item		
6	Allow for profit if required.	Item		
7	Provide the sum of R35.000,00 (Thirty Five Thousand Rand) for providing a Community Liaison Officer for ten months.	Item		35 000.00
8	Allow for general attendance.	Item		
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	SECTION NO. 7			
	BILL NO. 1			
	PROVISIONAL SUMS			

SECTION NO. 7

BILL NO. 1

PROVISIONAL SUMS

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SECTION NO. 7

BILL NO. 1

PROVISIONAL SUMS

BUBESI JSS FINAL SUMMARY			
SECTION NO	ITEM	Page	TOTAL
1	PRELIMINARIES	1	R
2	GRADE R BLOCK	46	R
3	UNISEX ABLUTION	78	R
4	EXTERNAL WORKS (Add total on BoQ page 122 + 131)	122;131	R
6	PROVISIONAL SUMS	135	R
	SUB-TOTAL		R
	CONTINGENCIES		
	Allow the sum of R350 000.00 (Three Hundred and Fifty Thousand Rands) for Contingencies to be used as instructed by the Principal Agent in terms of clause 17 of the Principal Building Agreement.		R 350 000.00
	ESCALATION (CPAP)		
	Allow the sum of R230 000.00 (Two Hundred and Thirty Thousand Rands) for Building Cost Escalation to be adjusted in terms of the JBCC		R 230 000.00
	SUB-TOTAL		R
	ADD: VALUE ADDED TAX (15%)		R
	TOTAL CARRIED TO FORM OF OFFER		R

PART B

ELECTRICAL INSTALLATIONS

BUBESI JSS:
ELECTRICAL INSTALLATION

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PART 1: ELECTRICAL WORKS SPECIFICATION

PART 1: ELECTRICAL WORKS SPECIFICATION

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1.0 Purpose

- 1.1 This Specification is intended to set out the general technical and procedural requirements for the installation of electrical lighting, power and ancillary services within and around premises largely as contemplated in The Code of Practice for the Wiring of Premises, South African Bureau of Standards SANS 10142-1:2003 (hereinafter called the Wiring Code, or SANS 10142-1:2003). Where the installation falls outside the scope of the Wiring Code, those portions of the installation (e.g.: MV switchgear and cabling, power transformers, and so forth) shall be covered in one or more supplementary specifications appended hereto).
- 1.2 This Specification shall be read in conjunction with the Contractual Conditions, Schedules, Bills of Quantities and Drawings.
- 1.3 Clause separations and headings are given for guidance only and the Work may not necessarily be limited to any particular section(s) of this Specification and the project Documentation must be read as a whole.

2.0 Scope

- 2.1 This Specification covers the supply, delivery, off-loading, storage, installation, testing, commissioning and handing over in full working order, complete in all respects of lighting, power and ancillary services as outlined in this Specification and/or shown on the drawing(s). Unless specifically stated otherwise, any reference in the Documentation (see clause 3.1.2) to any material or service being provided, fixed, rendered etc, shall mean that such provision falls under the Contractor's contractual obligations.
- 2.2 The service/s installation/s shall comprise, but shall not be limited to: all notifications and applications to Authorities, including payment of fees, distribution boards, cables, bus-bars, wireways, wiring, controls, accessories, luminaires and lamps, earthing, static and lightning protection/bonding, facilities for other services, fixings and building-in, earthworks, painting, special power supplies, data services, fire alarms, access and intruder control, communication, TV and radio services, working and record drawings, maintenance manuals etc and all other things to form a complete and proper installation to the extent as contemplated in the Documentation.
- 2.3 The Tenderer shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the Works and of his rates and prices contained in the various schedules and that his offer shall cover all his obligations under the Contract for the full and proper completion of the Works.

3.0 Definitions

- 3.1 In addition to the definitions contained in Part 3 of the Wiring Code, the following shall apply:-
 - 3.1.1 'Document' and 'Documentation' shall mean the complete set of contract Documents including any relevant government department's specifications and conditions (where applicable), this Specification, schedules, bills, drawings and any variation orders or site instructions issued in terms of the Contract.
 - 3.1.2 'Contractor' or 'Electrical Contractor' shall mean the person, partnership, company or firm appointed to undertake the electrical and or ancillary installation hereinafter called the electrical installation or Works in terms of this Contract. In this Document, 'Contractor' shall have the same meaning as nominated, selected or domestic sub-contractor where the electrical installation is in any form a sub contract to the Main Contract. For clarity, the builder or principal contractor shall be referred to as the 'Main Contractor'. The Contractor shall also be fully responsible under the contract for any of his sub-contractors, agents, assigns, suppliers etc.

- 3.1.3 'Tenderer' shall mean the person, partnership, company or firm who makes a bid to carry out the Works. The successful Tenderer will normally become the Contractor upon official award of the contract and the completion of contractual Documentation when all obligations under this Contract shall become the Contractor's liability.

4.0 Site Visit

In instances where there may be no mandatory formal Tenderers' site visit, Tenderers nevertheless are advised to visit the Site of the Works, prior to the submission of any tender, to ascertain site conditions, accessibility, available facilities etc. No claim on the grounds of want of knowledge in these respects, or any others, will be entertained.

5.0 Compliance with Regulations

- 5.1 The installation shall comply with the latest versions of the following standards and regulations except where more stringent requirements are laid down in the contract Documentation in which event the latter shall take precedence:-

- The Code of Practice for the Wiring of Premises, SANS 10142-1:2003.
- The latest issues of all SANS Standards and Codes of Practice (hereinafter called SANS standard/s) or, if such standards do not exist, then the latest versions of the appropriate international standard as issued by the British Standards Institute (BS) and/or the International Electrotechnical Commission (IEC).
- The Occupational Health and Safety Act 1993 (Act 85 of 1993), (OHSA) and the Construction Regulations R1010 dated 18 July 2003.
- The bye-laws and regulations of the Local Municipality and Authorities who are responsible for the area in which the Works are situated
- Telkom regulations and specifications

- 5.2 The Contractor shall issue all notices and pay all the required fees in respect of the installation to the authorities, and shall indemnify the Employer, Main Contractor and Engineer from all losses, claims, costs or expenditure which may arise as a result of the Contractor's failure to comply with these requirements and the regulations of any relevant Authority.

- 5.3 It shall be assumed that the Contractor is conversant with the requirements outlined in 5.2. Should any requirements, by-laws or regulation, which contradicts the requirements of this Document, apply or become applicable during the course of the Works, such requirements, by-law or regulation shall overrule this Document and the Contractor shall immediately inform the Engineer of such a contradiction. Under no circumstances shall the Contractor carry out any variations to the installation in terms of such contradictions without obtaining the written permission to do so from the Engineer.

6.0 Standards and Quality of Work

- 6.1 As the Wiring Code lays down strict requirements for complying with SANS standards, a compulsory specification published in a government gazette, or otherwise approved in terms of the Wiring Code, no detailed list of Standards will be scheduled herein. However, portions of the Works falling outside the scope of the Wiring Code shall comply fully with the latest versions of the applicable standards and codes issued by the SANS or, in the absence of such standard, with an acceptable international standard. Any reference to a particular standard may be given for guidance/clarification only; this shall not relieve the Contractor from complying with all relevant standards in their entirety.

- 6.2 All components shall be new and of the best available quality and of the class most suitable for the purpose and environment for which they are intended. The whole installation shall be extremely reliable and all parts shall be of such material as will ensure that they are capable of withstanding variations in temperature and humidity arising under working conditions without distortion or deterioration or setting up of undue strain on any part.

Any particular make or model of equipment referred to in the Documentation is for guidance purposes only in setting standards/types/performances required; equipment that is equal or superior in all respects, and to the approval of the Engineer, may be offered by Tenderers. No reference to any particular make of any equipment shall be construed as that equipment having been selected by the Engineer or Client and the Contractor shall be fully responsible for the guarantee and performance of such equipment.

Only equipment and materials with a proven track record in similar applications will be considered.

- 6.3 Equipment and components of a similar class, such as wiring accessories, switch disconnector units etc, shall be of the same make, pattern, and where applicable, colour, throughout.
- 6.4 The Work shall comply with the requirements of the Documentation, but where it may become necessary to carry out the Work in a different manner; the Contractor shall first obtain the approval of the Engineer in writing.

In cases where items offered by Tenderers are not in accordance with the contract Documentation, the deviation/s must be fully detailed, irrespective of whether a special form is included for this purpose or not, and such details shall accompany the tender submission in the form of a covering letter, or on the form provided. Merely stating 'as (manufacturer's name / item)', or submission of manufacturer's pamphlets etc. is not acceptable, will not be considered part of any offer and will be ignored. Where no details are submitted, in a covering letter, or on a form provided, the offer shall be deemed to comply fully with the Works Documentation and the successful Tenderer/Contractor shall be liable for performance strictly in accordance with all specifications and conditions.

- 6.5 The complete Work shall be carried out by qualified, highly trained, skilled and competent operatives to the highest standard of workmanship. The minimum requirement is that a permanent on-site electrician whether working alone or leading the Contractor's workforce, and who must be an 'A' Grade artisan as determined by the Department of Labour, is to be the appointed artisan who shall be responsible for the day to day installation work.

An adequate number of workmen shall be employed at all times to ensure satisfactory progress of the Works in accordance with the overall pace of the project and/or in harmony with any Works programme set by the Architect, Main Contractor or Engineer, etc.

The Contractor shall liaise and cooperate with any other contractor(s) whose work is related to, close to or build into with the Works as detailed herein and shall coordinate the Work to avoid fouling, unsatisfactory setting out etc. Any failure by other contractors to collaborate with the Contractor herein shall be immediately reported in writing to the Engineer and Main Contractor.

The Work shall at all times and for the full duration of the Contract, be carried out under the management and supervision of a skilled and competent representative of the Contractor who will be authorised to receive and carry out instructions on behalf of the Contractor and to attend site meetings.

7.0 Rejection of Inferior Work and Materials

All inferior work or work containing inferior material shall be rejected by the Engineer whereupon the Contractor shall immediately remove and rectify the faulty work as necessary and bear all costs in connection therewith.

8.0 Drawings and Samples

- 8.1 Tenderers may be required to submit for approval, comment or records samples of materials, apparatus or components, and also drawings, schematic diagrams or technical details, including calculations, upon which their design and/or offer is based before any contract is awarded. Such details may also be called for during the course of the Contract prior to installation. Any approvals given or comments made shall be on the generality of the scheme and shall not relieve the

Contractor of his responsibility to ensure full compliance with all performance and regulatory criteria.

NOTE: A request for submission of samples or drawings does not imply that the Tenderer's quotation will necessarily be accepted.

8.2 Drawings shall be clearly marked "WORKING DRAWINGS FOR APPROVAL", or as otherwise applicable. Samples shall remain on site until completion and taking over of the Works or, with the Engineer's approval, the samples may be embodied within the installation.

8.3 All expenses in connection with the supply and return of the drawings and samples shall be borne by the Tenderer/Contractor.

9.0 Guarantee

9.1 All equipment supplied and all work performed shall be guaranteed against defective operation, poor design (where designed by the Contractor, or in components / assemblies with inherently poor design), and unacceptable / faulty workmanship, all as determined by the Engineer, for a period of 12 months after commissioning, handover and Client acceptance.

Any faults found during the guarantee period shall be timeously repaired or replaced by the Contractor, including peripheral damage/disturbance (e.g.: wall finishes etc damaged during the course of repairs), at his own expense, excluding mis-use and abuse by others and fair wear and tear. Discharge type lamps shall be included in the 12 month guarantee period; however, incandescent lamps shall carry a 3 month guarantee.

The Contractor is required to carry out any remedial work under the guarantee at times and in a manner which will cause the least disruption to the Client's, or other occupant's, operations.

9.2 The Contractor shall ensure that he has access to sufficient spare components for all equipment readily available to forestall any delays in repairing the installation.

10.0 Operating and Maintenance Details

Two complete sets of technical manuals complete with spares schedules, as-fitted layout drawings, schematic wiring diagrams and operating and general maintenance information, bound in hard-cover ring binders shall be prepared by the Contractor and delivered to the Client at or before final handover. A full 'As-Built' set of drawings shall also be submitted to the Engineer for record purposes.

The main and individual distribution board (DB) single line diagrams shall be brought up to 'As-Built' status and copies placed in the technical manual. A further copy of the main single line diagram shall be mounted in a glass-fronted frame and hung in a suitable position in the main LV room. Copies of the distribution board diagrams shall be folded (or reduced) to A4 size and placed in an A4 sized perspex fronted frame or document pocket in the applicable DB. Such frames or pockets shall be fabricated from 1,2mm pre-galvanised steel and spot welded to the DB (usually to the inside of the DB door).

This documentation shall be submitted to the Engineer for comment and approval prior to handing over to the Client. It is therefore advisable to submit the details in draft format so that any amendments/corrections can be easily incorporated.

11.0 Inspection and Testing of Works

11.1 The Contractor shall attend upon the Engineer as reasonably required for Work inspection. Normally, inspection of Work in progress will take place on the same day as the general site meeting, or such other times as the Engineer may reasonably require. Handing-over inspections will be done at the completion of the Contractor's testing, issuing of the Certificate of Compliance by the Contractor's accredited person, livening the installation by the Supply Authority,

commissioning of the installation and upon making a written request for the Engineer to carry out an initial handover inspection.

Where the installation is to be switched on and taken over in portions, the Certificate of Compliance shall be limited to that particular part of the Work. New Certificates of Compliance shall be completed for remaining phases of the project as applicable and the Supply Authority's permission formally obtained to switch electricity to those areas.

The Contractor shall, prior to requesting the Engineer to undertake an initial handover inspection, do a full, complete and proper inspection of his Work to ensure that everything is absolutely complete and in accordance with the Documentation. Following this inspection, and rectification of any faults in parts of the installation that may be required, the Contractor shall make a written request to the Engineer for a handover inspection. Any faults still found in the installation shall be listed by the Engineer and handed to the Contractor who shall attend to all faults within a reasonable period as decided by the Engineer except that this period will in no circumstance exceed 14 days. Once all listed faults have been rectified, the Contractor shall again request the Engineer in writing to carry out a final handover inspection.

Upon the successful completion of a handover inspection and the issuing of a handover certificate by the Engineer, the responsibility for the security of the installation, or part thereof, shall be deemed to be with the Client.

Under no circumstances will any inspection by the Engineer and/or, if appointed, the Electrical Clerk of Works of Resident Engineer, relieve the Contractor of his obligations in terms of the Documentation.

- 11.2 On completion of the installation, or such part thereof as may be determined by the Engineer, the Contractor shall carry out installation testing and inspection in accordance with Part 8 of SANS 10142-1:2003 and/or any other relevant Standard.

The result of these tests, duly certified by the Contractor, shall be submitted to the Engineer in the form of a typed test-result certificate. No testing for acceptance purposes will be carried out by the Engineer until this is received.

Upon receipt of the test certificate, the Engineer will arrange to carry out acceptance tests and to witness commissioning procedures, including load-balance, phase rotation, bonding and labelling checks. If any faults are found in the installation, a list of those immediately noticed will be handed to the Contractor by the Engineer. The Contractor shall forthwith rectify such faults and issue a further test certificate endorsed "RE-TEST" with all reasonable despatch whereupon the Engineer will carry out further check-tests.

Any list of faults issued by the Engineer shall not be regarded as final, but given only for the assistance of the Contractor who will be bound to exercise all necessary diligence in their rectification and to check for any other faults and to rectify same.

The Contractor shall supply all necessary testing instruments for carrying out tests, including, but not limited to: insulation tester, earth loop-impedance tester, clip-on ammeter (e.g.: for load-balance testing), earth-leakage tester, etc. Where there is reason to doubt the accuracy of the instruments, the Contractor shall arrange for tests to check their accuracy.

- 11.3 Where cast-in conduit is installed, the Contractor shall thoroughly check his layout, fastness etc, well before any concrete is poured. The Engineer shall be informed by the Contractor in writing that he is ready for a check-inspection, giving the Engineer not less than 48 hour notice (usually by telefax and or email). A qualified operative of the Contractor shall stand by at all times when concrete is being poured so that any conduits or boxes that may become loose, displaced etc can be refixed.
- 11.4 If it is necessary for the Engineer, his agents or assigns, to spend extraordinary time in respect of checking, testing, inspection or any other matter due to the Contractor's default or unsatisfactory

attendance all costs of the Engineer in obtaining remedy shall be for the Contractor's account. For example, if the Contractor failed to carry out his own prior testing in a reasonable and diligent manner, or to check cast-in conduits properly before calling the Engineer to undertake a check-inspection, thus necessitating further visits and/or extra time incurred, costs of the Engineer will be charged to the Contractor. These costs will be deducted from the Contractor's claims, or shall be claimed by submission of an account. Engineer's claims for wasted time, including disbursements, shall be based on the applicable Department of Public Works Rates for Reimbursable Expenses.

12.0 Technical and Installation Requirements

12.1 Main Electrical Supply

In instances where the incoming main supply from the Supply Authority is at low voltage (LV), requirements of the Supply Authority with regard to method of incomer connection, earthing, testing/approval of main circuit breaker etc, must be strictly adhered to.

The Supply Authority's requirements for their metering must be complied with and all facilities, space, bus-bar links for current transformers (CTs), etc, as the case may be, shall be in accordance with their requirements. The Contractor shall be deemed to have made all allowances for the Supply Authority's requirements in their tender submission.

12.2 MV Equipment and Cabling

Medium voltage (MV) equipment falls outside the scope of this building services specification. Where required, MV cables, MV switchgear and power transformers etc. shall be specified in a supplementary specification and/or drawings.

12.3 Miscellaneous Equipment and Installations

Miscellaneous items such as diesel generators, uninterruptable power supplies (UPSs), overhead lines etc. which fall outside the scope of this building services specification shall be specified in a supplementary specification and/or drawings.

12.4 Distribution Boards

12.4.1 General

- a) Distribution Boards (DBs) shall be of the type as detailed in the single line diagrams, the Detailed Specification and, where applicable, the equipment schedules. Unless otherwise indicated, distribution boards shall be provided with prefitted space/s for a minimum 20% extra switchgear, subject to a minimum of one space for each class of circuit breaker, combination fuse switch (CFS), contactor etc, viz.: 3-pole, single pole etc, as the case may be.
- b) DBs shall comply fully with SANS 1765.
- c) Enclosures
 - i) Distribution boards for internal applications shall be constructed from folded pre-galvanised 2mm mild steel sheet suitably welded, bolted and braced to form a rigid construction and finished with an epoxy coating after fabrication. DBs for external applications shall be similar to internal DBs, but shall be fabricated from 2mm 3CR12, plus a suitable epoxy finish. Boards for special applications may be made from polished 2mm 316 stainless steel, fibreglass etc; these will be more fully described in the Detailed Specification where applicable.

- ii) All equipment, except door mounted instruments, indicators and so forth, shall be mounted behind removable fascia plates with only the switchgear operating handles protruding.
 - iii) Normally, free standing boards shall not exceed 2,3m in height with operating handles, push-buttons etc not exceeding 1,8m from the floor nor lower than 600mm above floor level (subject to any equipment part not being lower than 300mm from the floor).
 - iv) Cabinet type boards used mostly for LV distribution shall be 'Form 1' degree of separation to IEC 439 while cubicle boards used mostly for Motor Control Centres (MCCs) shall be 'Form 4'.
 - v) The Contractor is to check all access routes for distribution boards. Where necessary, DBs are to be made in sections to allow access into their final position.
- d) Protection
- All boards shall be rendered moisture and vermin proof and shall be adequately ventilated. Unless otherwise specified, free standing and wall mounted DBs in a normal internal environment shall be protected to IP43. DBs in certain factories may have to have a higher degree of protection which will be stated in the supplementary Specification or single line diagrams. The complete DB and its components shall be suitable for coastal conditions.
- e) Bus-Bars
- i) The bus-bars shall be of high conductivity 99,9% pure copper of adequate cross section for the current and short circuit rating, mounted on edge (not flat). Multiple/laminated bars shall be appropriately derated as necessary and shall be spaced by a distance equal to the bar thickness. Bars shall be supported on resin type insulators suitable for mechanical stresses due to prospective fault currents and otherwise so arranged and braced as to obviate distortion under short circuit conditions. The material used for bracing, shielding etc must be tested and approved by SANS and shall be completely non-hygroscopic and non-tracking.
 - ii) Bus-bar current ratings for both phase and neutral shall be based on an internal temperature of 40°C with a maximum bar temperature rise of 60°C.
 - iii) As a guide, the following current densities should not be exceeded for single bars:
 - 100 Amps and below : 3,50A/mm²
 - 101 - 300 Amps : 2,65A/mm²
 - 301 - 1000 Amps : 1,85A/mm²
 - 1001 Amps and above : 1,20A/mm²

- iv) In addition to the current rating, the bars shall be sized to accommodate the prospective fault rating and the cross sectional area of the bars shall be the greater of the calculated sizes. Sizing for fault levels shall be based on the following:

 $a = 8,2 \times I_{sc} \times \sqrt{t}$, where:
a = minimum cross section in mm²
I_{sc} = prospective short circuit current in kA
t = maximum time in seconds to clear fault, subject to a minimum of 0,2s
- v) An earth bus-bar shall be installed at a convenient position, usually near the bottom, along the entire length of DBs with an incomer size of 200 Amps or more, or they may be of shorter but adequate length for smaller DBs. Earthbars need not be supported on insulators. The cross sectional area of the earthbars shall be equal or greater than half the cross sectional area of the incomer feeder cable. Earth terminal strips with screw connections may be used for boards with a maximum incomer size of 100 Amps.
- vi) Teed-off neutral bars are to have the same cross sectional area as the sub-feeder phase bars and shall be mounted in a suitable position adjacent to the switchgear, which they serve. The outgoing connections must match the sequence of the switchgear to which they relate. Neutral terminal strips with screw connections may be used for boards with a maximum incomer/sub-feeder size of 100 Amps. These requirements shall also apply to smaller DBs where such neutral bars are also the main neutral bars.
- vii) A separate neutral bar shall be installed for circuits protected by adjacent single phase earth leakage breakers connected to the same phase.
- f) Gland Plates
 - i) Bottom entry boards shall be provided with minimum 2mm galvanised steel gland plates installed across the full width of each DB section at a minimum height of 300mm above the level of the bottom of the DB. Sufficient clearance for the bending of cable cores shall be provided between the lowest terminals of any equipment.
 - ii) Where single core cables are to be terminated, 10mm non-hygroscopic Delaron or similar material shall be used for the gland plate. Alternatively, gland plates for single core cables shall be made from 4mm thick aluminium.
- g) Doors

Where called for, doors shall be fabricated from the same material as the main enclosure and shall be provided with closed-cell silicon gasketing to obtain the level of protection required (Refer also to 12.17.6). The doors shall be provided with catches, square-key turnbuckles, lockable catches or cylinder locks and handles, as specified in the Detailed Specification and/or drawings. All DB keys, where provided, shall be the same for all DBs on the particular project.
- h) Paintwork
 - i) Pre-galvanised sheet metal shall be cold galvanised at all exposed edges and welded surfaces, degreased, bonderised, etch-primed and then finished with baked epoxy enamel or powder coatings per SANS 51274, as

applicable and to paint manufacturer's recommendations to achieve a dry film thickness (DFT) of 70 microns.

- ii) 3CR12 panels shall be pickled, passivated and etch-primed before being finished, similarly to pre-galvanised sheet steel boards, with baked epoxy enamel or powder coatings to achieve a DFT of 70 microns.
 - iii) Colour finishes shall be as follows:
 - Normal Supply LV Distribution Boards: Light Orange, colour B26 of SANS 1091
 - The standby power sections of DBs shall be Signal Red, colour A11 of SANS 1091
 - Uninterruptable Power Supply (UPS) DBs, or such sections within composite boards shall be Dark Violet, colour F06 of SANS 1091
 - Small domestic and shop type DBs, and boards in open kitchen areas shall be finished white, colour G80 to SANS 1091 (unless the latter is of bright stainless steel)
 - iv) A minimum of 1 litre of touch-up paint for each colour shall be provided.
- i) Switchgear
- i) MCCBs, MCBs and switch-disconnectors shall be of the same make throughout. Similarly, CFS units shall be metalclad type and are to be of the same make throughout. Current ratings must be clearly indicated on the front of the units.
 - ii) A suitably braced chassis for the mounting of moulded case type switchgear, including DIN type rails etc, shall be firmly secured to the frame of the switchboard. Large switchgear, such as ACBs, shall be secured directly to the framework using suitable structural/bracing members.
 - iii) MCCBs switch disconnectors and CFS units with a rating of 150 Amps and above shall be connected to the main bus-bars with bus-bar links. PVC insulated cable, neatly installed, shall generally be used for switchgear below 150 A. This latter requirement shall not preclude the use of small-section feeder bus-bar arrangements where available. Where long runs of PVC insulated cable are run within the DB, they shall be neatly laced together, or shall be installed in purpose made slotted PVC trunking. The smallest cable size for DB wiring shall be 2,5mm².
 - iv) Where necessary, stub bus-bars shall be fitted to the outgoing side of MCCBs and CFS units and the supply side of switch disconnector incomers to allow for lug connections to the cable cores.
 - v) Incoming circuit breakers and bus-coupler breakers rated 800 Amps and above shall be of the withdrawable type air circuit breakers (ACBs) or large frame MCCBs, as specified.
 - vi) Castell, or similar interlocks shall be provided for all main DBs which have bus-couplers. Alternatively, where detailed in the single line diagrams and/or Detailed Specification, the bus-coupler shall comprise a shuttered cradle only (no circuit breaker fitted) to match the incomer circuit breaker cradles. In the latter instance, bus-coupling will be effected by racking out the appropriate incomer ACB/MCCB, fitting it into the bus-coupler cradle and engaging the 'ON' position.

vii) Where MCCBs and ACBs have been set to a lower rating (e.g. 400A MCCB set to 350A etc.), the setting arrangements shall be sealed off and rendered tamper-proof after adjustment.

viii) Where instrument fuses or fused switchgear is used, spare fuses shall be housed in a small compartment built into the applicable board. 20% of each size of fuse, subject to a minimum of three, shall be provided and shall be mounted in stainless steel 'Terry' type clips inside the compartment. A label inside the spare fuse compartment shall indicate all part numbers for reordering. The outside of the compartment shall be labelled as follows:

SPARE FUSES

THE FUSES ARE USED TO CONTROL DANGEROUS PROSPECTIVE FAULT CURRENTS – DO NOT BRIDGE OUT UNDER ANY CIRCUMSTANCES

Reorder and replace any used-up fuses immediately

ix) Where fault limiting is employed, fuses or fault-limiter MCCBs shall be selected to limit down-stream faults to levels no higher than indicated in the single line diagrams or implied in the design.

j) Surge Arrestors

Surge arrestors, which comply with SANS 61643-1, may be installed in each distribution board. These shall be fitted at the load side of main incomers to each phase and the neutral.

k) Timeswitches

i) Timeswitches shall be suitable for single-phase operation at a minimum rating of 15 Amps. They shall be of the programmable electronic type complete with a minimum 24-hour back-up rechargeable battery. The battery shall be a locally available type and shall be arranged for easy removal and replacement. The characteristics of the timeswitch shall suit the requirements of the circuit as dictated by details in the single line diagrams (e.g.: day omitting etc). Solar type timeswitches shall be used for all outside lighting circuits unless photocells are employed for control purposes.

ii) A manual by-pass switch, mounted in the DB fascia, or as otherwise indicated, shall be provided to permit the circuit to be switched 'on' or 'off' manually for one switching cycle without affecting any other settings.

l) Contactors

i) Contactors shall be DP or TP electromagnetically operated air break, low noise type suitable for the rated supply voltage, circuit current and prospective fault level current.

ii) Contactors for general lighting and power shall be AC1 category while AC3 category shall be used for motor starting.

iii) Where auxiliary contacts are not specified to be fitted initially, the contactor shall have provision for adding these contacts. Auxiliary contacts shall be rated at 6 Amps, 250V AC. Auxiliary contacts characteristics such as 'make-before-break', 'late break' etc must be inherent in the design and shall not be adapted from standard contacts.

iv) All contactors shall have the following features:

- Easily replaceable coil
- Permanent air-gap in the magnetic circuit
- Clearly marked main and auxiliary terminals
- Provision for easy inspection and changing of contacts

v) Contactors shall be electrically and mechanically interlocked for changeover arrangements and electrically interlocked only for star-delta starters.

m) Instruments and Controls

i) Instruments, indicators and controls shall be provided as indicated in the single line diagrams. Where the components are to be actuated from the front of the DB door, they shall be rated to the appropriate IP level (e.g.: IP43). In instances where meters and the like are required, and where these cannot be protected to the level specified by themselves, suitably protection-rated impact resistant glass windows shall be provided in the door through which to view the dials and the instrument/s mounted in the inner fascia.

i) Doors in which instruments are installed shall be provided with a flexible woven copper earth link across the hinge side. Insulating shrouds or other suitable barriers shall be installed to prevent accidental contact with door mounted instrument terminals.

ii) Fuses for the protection of instruments shall be of the HRC cartridge type mounted behind the DB fascia. All control fuses shall be clearly labelled.

iv) Push-buttons for protection ratings of IP65/66 shall be provided with rubber 'boots' for enhanced protection. Any exposed rubber shall be further protected (e.g.: with silicon covers) where used in food factories containing sugars and other carbohydrates which may give rise to attack from bacteriological action when fine particles collect on or near the rubber.

v) Only LED type indicator lamps shall be used. A set of spare LEDs (20% of each type, subject to a minimum of three) shall be supplied. These may be housed in the spare fuse compartment where provided, and the labelling suitably modified. Alternatively, the LEDs shall be housed in a small labelled compartment similarly to HRC fuses as aforementioned

vi) Unless otherwise specified, ammeters, voltmeters, frequency meters and running-hour meters shall have a minimum dial size of 96mm x 96mm with anti-static impact resistant clear faces. Instruments shall be screened against magnetic interference.

vii) Voltmeters shall be of the moving iron type with class 1.5 accuracy as per IEC 51. A zero adjustment screw shall be provided. Voltmeters shall be scaled 0 - 250V or 0 - 500V as appropriate. Selector switches used in conjunction with a single voltmeter shall be of the cam-actuated or wiping air-break type. The switch shall be labelled with the 'OFF' position and other positions as specified (e.g.: 'N - R' for neutral to red phase, 'R - Y' for red to yellow phase etc.)

viii) Ammeters shall have a moving iron element to indicate instantaneous values. Direct reading ammeters may be used up to 60 Amps. Current

Transformer (CT) operated ammeters of 60 Amps and above shall be 5 Amps full scale, calibrated to read actual primary currents. The CT ratio shall be indicated on the faceplate.

- ix) Unless otherwise stated, ammeters shall be of the Maximum Demand (MD) reading type. The mean value over a fifteen minute period shall be indicated by a red pointer driven by a bimetal spiral element. Full load current shall be indicated with a distinctive line on the dial. The scale should indicate at least 25% over full-load rating.
 - x) Instrumentation and control (I&C) wiring shall be segregated into LV and ELV wiring and installed in separate slotted plastic trunking within the main casing of the board. I&C wiring shall also be kept separate from power wiring. The smallest ELV conductor shall be 1mm². Conductors connecting to components on hinged panels shall be shrouded in spiral plastic 'loom-former' and fixed on both sides of the hinge. A loop shall be formed in the wiring so that the loom produces a twisting motion away from the door jamb when it is closed.
- n) Consumption Meters
- i) KWh meters shall be Direct on Line (DOL) type up to 80 Amp rating and CT operated above this amperage. Meters shall be calibrated for the specific application to obviate the use of multiplication factors.
 - ii) Consumption meters shall have cyclometer dials with six digit readout, the last digit indicating one-tenth of a unit.
 - iii) Facilities for a security seal shall be provided on the fixing screws of the terminal cover.
- o) Current Transformers
- i) Current transformers shall be epoxy resin encapsulated and comply with the requirements of SANS 60044-1 and IEC 185. Unless otherwise stated, the secondary current of CTs shall be 5 Amps and all instruments, meters etc shall be selected accordingly. The rated burden shall not be less than 10VA.
 - ii) The following accuracy classes shall be adhered to:

<u>Application</u>	<u>Primary Current</u>	<u>Class</u>
Indication	A11	5
Protection	A11	3
Metering	Up to 250A	1
Metering	250 - 600A	0,5
Metering	600 - 800A	0,2
Metering	800A +	0,1

p) Power Factor Correction

- i) Where called for, power factor correction (PFC) capacitors shall be housed in a separate section of the DB, segregated from other sections by a metal barrier, and designed for extra ventilation. The PFC section shall have low-level vermin proofed inlet louvres and the top shall have a 12mm diamond mesh 'roof' with a solid flat section spaced at least 50mm above the mesh. Whilst the construction, paintwork etc, shall be similar to the DB casing, the level of protection shall be IP21.
- ii) PFC capacitors shall be protected and controlled by HRC fuses and contactors specially designed for PFC applications. Switchgear shall be rated 70% higher than the normal current rating of the capacitor, e.g.: for a 60kVAr capacitor, the rating of the protective fuses would be 150 Amps in a 400V system.
- iii) Where metalised plastic film capacitors are used, the board construction shall be such as to limit the temperature rise, with all capacitors switched-in, to 35°C above ambient. If necessary a fan, complete with switchgear, controls and failure alarm, shall be employed. This equipment will not normally be indicated in the single-line diagram/s and the Contractor shall make due allowance as necessary.
- iv) PFC controllers shall be electronic type giving 6 or 12 steps of control as specified. Digital indication of the power factor shall be built in, as well as 'auto, manual, off' controls and LED pilot lights indicating PFC steps.
- v) The separate capacitor section of the DB shall have a 'double skin' metal separating barrier with a 12mm air gap for all PFC loads of 250kVAr and above.
- vi) A discharge resistance system shall be provided for each capacitor to ensure effective discharge within 60 seconds after switch-off. A suitable barrier, complete with warning notice, shall be installed for all capacitor banks.

q) Anti-Condense Heaters

Where specified, 'black-heat' anti-condense heaters shall be fitted in the bottom sections of DBs in areas of high humidity or dampness. The heaters shall be fitted behind suitable screening to obviate accidental contact with persons or wiring. Anti-condense heaters shall be protected by dedicated MCBs or fuses and shall be sized to prevent condensation without giving rise to excessive temperature levels inside the DB housing.

r) Labels

- i) Before installation, the Contractor shall submit a fully detailed proposed labelling schedule to the Engineer for comment and approval.
- ii) Engraved plastic 'Ivorine' or 'Traffolyte' type sandwiched labels shall be used for all labelling on DBs, control panels etc. Main labels on the outside of panels, and labels for individual components, switchgear etc shall be fixed to the panel or fascia face with brass bolts, nuts and washers. Labels for small grouped items such as a row of single pole MCBs may be securely fixed into slotted label holders. In the latter cases, the labels would normally identify the circuit number only and a typewritten legend card installed to the fascia front, or inside the DB door in a card holder, used to identify the circuit function.

- iii) Normal informative labels shall have black lettering on a white background while warning labels shall have white lettering on a red background.
 - iv) Lettering sizes for labels shall generally be as follows:
 - Outdoor Panels, Minisubs etc: 50mm
 - Indoor Panels (main labels): 15mm
 - Bus-bar sections and sub-compartments: 10mm
 - Individual switchgear, indicators etc: 5mm
 - v) Substations, minisubs, kiosks, transformer room & switchgear rooms, shall be provided with notices as required by the Occupational Health and Safety Act.
- s) Testing
- i) Unless otherwise specified, the Contractor shall make all arrangements and provide all instruments for inspection and testing by the Engineer of distribution boards at the manufacturer's premises. The Contractor shall give the Engineer at least 5 working days notice of any impending test/s.
 - ii) The tests shall comprise, but shall not be limited to:
 - Visual inspection, label checks etc
 - Polarity checks
 - 500V Megohm meter insulation resistance test
 - Injection tests for CTs etc
 - Function tests for all equipment, control and interlocking circuits, indicators, earth leakage relays etc
 - iii) In addition, these tests will be spot-checked at Site when phase rotation checks and installation commissioning will be carried out.
 - iv) After successful completion of tests, the Contractor shall provide the Engineer with duplicate test certificates for all DBs.
 - v) Extra time, travelling etc expended by the Engineer in repeating tests due to any failure shall be claimed from the Contractor in accordance with clause 11.4 herein.

12.4.2 Free Standing Distribution Boards

In addition to the general requirements contained in clause 12.4.1, free standing DBs shall be as follows:

- a) Distribution boards shall have a 'U' channel baseframe designed to support all equipment and to span cable trenches etc.
- b) General power supply boards shall be of the cabinet type with sections no wider than 1,5m.
- c) Cubicle boards for the control of motors shall be of a modular cubicle design. The disconnector for each cubicle shall be operated from the front and it shall not be possible to open the particular cubicle without switching off the disconnector.
- d) Unless otherwise stated, free standing boards shall be of the front access, bottom and/or top entry type as dictated by installation requirements and/or

stated in the single line diagrams. Where called for, rear panels shall be removable and shall be secured to the frame by means of square key turnbuckles.

- e) Where specified, boards shall be extensible to the left or right, as called for. This shall be accomplished by the installation of removable bus-bar cover plates in the side panels.
- f) Upon completion of cabling into the distribution board, the Contractor shall ensure that the board is rendered totally vermin proof, especially at the bottom of the board around the incoming cables.
- g) Distribution boards for external applications shall be fabricated from 2mm 3CR12 corrosion resistant steel sheets. External DBs shall be fitted with gasketed doors and shall be protected to IP55. These boards shall have sloped overhanging roofs for rain protection.
- h) Where boards exceed 2m in width, they shall be provided with suitable lifting bales to facilitate off-loading, emplacement etc using a crane or similar. Where no facilities are available at Site for off-loading heavy DBs, the Contractor is to ensure that the boards are delivered using a crane-lorry, or shall make such other arrangements as required.

12.4.3 Surface Mounted Distribution boards

In addition to the general requirements contained in clause 12.4.1, surface mounted boards shall be as follows:

- a) Unless otherwise indicated, all DBs shall be provided with flush mounting doors secured with catch/es, lock/s etc, as specified.

Except where otherwise specified, DBs shall be installed so that the top of the board lines up with the top of door frames. Where no such reference line exists the tops of boards shall be at a height of 2m above finished floor level. The maximum permissible height of any switchgear handle, push-button, meter or instrument face shall be 1,8m.
- b) Suitable heavy duty lugs for securing the board to a vertical surface shall be provided.
- c) Boards for external applications shall be fabricated from 2mm 3CR12 corrosion resistant sheet steel and shall be protected to IP55. A sloped roof shall be provided for rain protection. All cables entering or leaving externally mounted DBs shall do so at the bottom only.

12.4.4 Flush Mounted Distribution Boards

In addition to the general requirements contained in clause 12.4.1, flush mounted boards shall be as follows:

- a) Unless otherwise indicated, all DBs shall be provided with adjustable overlapping architraves and flush mounted doors complete with catch/es or lock/s as specified.

Except where otherwise specified, DBs shall be installed so that the top of the board lines up with the top of door frames. Where no such reference line exists the tops of boards shall be at a height of 2m above finished floor level. The maximum permissible height of any switchgear handle, push-button, meter or instrument face shall be 1,8m.

- b) The built-in tray may be fabricated from 1,6mm pre-galvanised steel without any further paint finish except for cold galvanising at exposed edges, weld joints etc.
- c) Small domestic type DBs may have the front panel and door made from 1,6mm pre-galvanised sheet steel. Such boards shall not exceed 500mm x 500mm and the framework shall be finished as per clause 12.4.1 h).
- d) Where called for, 'semi-recessed' boards shall be provided with a 35 to 50mm deep overlapping architrave surround into which the door/s and inner fascia are recessed. The portion of the architrave perpendicular to the wall shall be suitable for the future termination of surface conduits into the DB.
- e) DBs for fitting into 115mm single brick walls shall be provided with suitable 'keying' strips of expanded metal spot welded to the sides of the tray for building into the brick courses. In addition, expanded metal shall be spot-welded to the rear of the bonding trays to act as 'keying' for plaster etc. This mesh shall overlap the tray by 75mm on all sides to obviate cracks in plaster.
- f) At least two 20mm diameter spare conduits shall be installed from each DB into the ceiling void where applicable.

12.4.5 Layout Drawings for Approval

The Contractor shall timeously obtain detailed/dimensioned proposed layout drawings of distribution boards, including schematic wiring diagrams, bus-bar sizes, component details etc, from the board manufacturer prior to fabrication. The Contractor shall check all details, correct them where necessary and submit two sets to the Engineer for approval. No distribution board is to be fabricated until the Engineer's formal approval has been given.

12.5 Cablework

12.5.1 General

The Contractor shall be responsible for all main, sub-main and final circuit cablework.

12.5.2 Cable Types

Only the following types of cables shall be used for LV work:-

- a) PVC Insulated, Armoured Copper Cables (PVC/SWA/PVC)

Polyvinylchloride insulated, armoured, copper cable shall be 600/1000V grade in accordance with SANS 1507, comprising PVC insulated stranded copper conductors with PVC bedding, galvanised steel wire armouring and PVC sheathing overall.

Mains voltage cables shall be at least 2,5mm² and no larger than 185mm² for ease of handling. Parallel cables of equal size shall be utilized where the current demand is greater than that rated for 185mm² cables.

Control cables shall be at least 1,5mm² unless otherwise specified.

- b) PVC Insulated, Armoured Aluminium Cables (PVC/SWA/PVC) and PVCATAPVC Cable)

Polyvinylchloride insulated, armoured, aluminium cable shall be 600/1000V grade in accordance with SANS 1507 comprising PVC insulated solid aluminium conductors with PVC bedding, galvanised steel wire or aluminium tape armouring and PVC sheathing overall.

The cables shall be at least 16mm² and no larger than 120mm². Parallel cables shall be utilized where necessary.

Aluminium cables shall be used only when specifically specified.

c) PVC Insulated, Non-Armoured Cables (PVC/PVC)

Polyvinylchloride insulated non-armoured cable shall be 600/1000V grade in accordance with SANS 1507, comprising PVC insulated stranded copper conductors with PVC sheathing overall.

PVC/PVC mains cables shall only be used for trefoil configured applications.

For ease of handling the core size shall be limited to 240mm² except in special circumstances where space, routing etc. may allow for larger sizes.

Trefoil cables shall comprise 3 sets of three single core cables (R, Y & B), and one set of two cables for the neutral.

d) XLPE Insulated Cables

Where called for Cross-Linked Polyethylene (XLPE) insulated cables shall be used. These are similar to the specifications for the foregoing PVC insulated cables a), b) and c) except that the initial insulation shall be XLPE, thereafter PVC bedding and sheathing shall be used.

The Contractor must ensure early ordering of these cables as they are usually only made upon request and to a minimum quantity. For ease of identification, the Contractor shall insure that the manufacturer embosses the outer sheath: "XLPE insulated".

e) Flame Retardant and Halogen Reduced/Free Cables

Where called for in the Detailed Specification, low halogen (LH), halogen free (Non-halogenated, low smoke and fume, flame retardant - or "NHLSFR") or flame retardant (FR) PVC cables to SANS 1507 and BS6724 (latest issues) shall be used.

12.5.3 Cable Terminations

a) Cable Glands

Cable glands shall be used for armoured multi-core cables and are to be of the electroplated brass or bronze compression type and shall be matched to the type of cable used and shall be suitable for waterproof, flameproof or general installations, as required. PVC or neoprene shrouds and plated earthing washers shall be used in all instances.

b) Single Core Terminations

Termination of single core PVC/PVC cables in distribution boards, transformer cable boxes, etc. shall be undertaken by securely clamping the cables onto a fixed section of galvanised "Unistrut" type channel, or galvanised angle-iron, using nylon cable straps and then taking the individual cores through bushed holes in the non-

ferrous gland plate, thence to the termination point. Alternatively, with the Engineer's approval, a treated hardwood cleat arrangement may be employed.

c) Cable Joints

- i) Because of the relatively short runs of cable utilized in industrial general lighting and power services, through-joints shall only be used in exceptional circumstances and only with written permission from the Engineer.
- ii) Where a tee-off is required in indoor circuit cabling, this shall be effected using a suitable cable junction box, as Pratley, or equal and approved. Such junction boxes shall be of the weatherproof type, complete with integral compression glands and DIN rail-mounted terminals of appropriate rating.
- iii) Joints in power cables shall only be allowed a) where the cable runs exceed a standard drum length, or, b) with the express permission of the Engineer in writing

d) Conductor Lugs

- i) Lugs for the termination of conductors onto busbars and equipment are to be of the compression type and of the correct size and type for the application.
- ii) For cables of size up to 16mm², the locking type of handplier crimpers may be used. Above this size, the hydraulic type must be employed.
- iii) Where aluminium lugs, used for aluminium conductors, are bolted to a dissimilar metal (e.g. copper, tinned copper, etc.), suitable bonding compound shall be used to obviate the possibility of electrolytic action.
- iv) Shaped lugs shall be used in conjunction with shaped cable cores.

12.5.4 Handling of Cable Drums

- a) Drums of cable shall be delivered to Site with seals intact and shall be off-loaded and stored in an approved manner. Any drums, which show signs of damage or mishandling, shall at the Engineer's option, be replaced with fresh undamaged stocks. The Contractor shall bear all costs of replacing such unacceptable cables.
- b) Cable drums shall be supported on an axle and support jacks when the cable is unreeled. The arrow on the drum flanges showing the direction of rotation shall be observed. Rolling of drums along the ground will not be permitted.
- c) Empty cable drums shall be stored in a tidy and safe manner prior to their removal from the Work Site. The Contractor shall be responsible for the removal and disposal of all empty drums at intervals dictated by Work progress, or upon instruction by the Engineer or the Main Contractor.

12.5.5 Installation of Cables

a) Surface (Direct)

Where cables are run along horizontal or vertical building surfaces, structural steel members, in vertical ducts, etc., they shall be secured with approved means of fixing such as saddles, cleats, etc.

All cable runs shall be vertical or horizontal, or run parallel to building or structural members and shall at all times present a neat appearance.

b) Cable Trays

- i) Where a sheet steel cable tray is required, this shall consist of approved galvanised sheet-metal perforated medium duty tray supported with approved substantial brackets or hangers at suitable intervals to reduce sag to a maximum of 10mm. Where necessary to achieve this, the run of cable tray shall be reinforced along its length with angle iron or similar stiffening members, or shall be of the heavy duty type.
- ii) When wire mesh trays are required, these shall be of heavy duty hot-dipped galvanised type, or stainless steel, left bright as required. Mesh trays shall be installed in a similar manner to perforated tray.
- iii) All cable tray accessories such as bends, tees, etc., shall be as supplied by the tray manufacturer and made-up components will not normally be allowed.
- iv) Trays shall be installed vertically or opening-up horizontally as specified. Brackets and hangers shall be constructed to permit the easy removal of any cable from the tray. Flat horizontal runs of tray suspended from slabs shall be installed at least 200mm clear of the soffit. Trays crossing under beams shall be spaced off the beam soffit to allow the removal of the largest cable(s) in the group.
- v) Earth continuity shall be maintained throughout the complete run of cable tray.

c) Cable Ladder-Rack

- i) Where ladder-rack is called for, this shall consist of 2,0mm thick galvanised steel with side sections of 75mm and cross-rungs every 350 – 400mm.
- ii) Only manufacturer's accessories shall be used for ladder-rack.
- iii) Ladder-rack shall be installed in the same manner as cable trays (Refer to 12.5.5 (b)).
- iv) Where specified, cable trays and racks shall be finished in a light orange epoxy coating, colour B26, or other colour appropriate to the service, to SANS 1091, all as clause 12.4.1 h).

Epoxy coating damaged or removed during installation shall be made good.

d) Cable Installation on Racks and Trays

- i) Racks and trays shall be sized to afford at least 20% spare space. Control cables may be installed touching, but not bunched. Power cables shall be laid-up spaced apart not less than the diameter of the largest adjacent cable, unless otherwise specified.
- ii) Cables shall be fixed to racks and trays using stainless steel cable strap and buckles fixed every 500mm, or fixing-rung intervals for edge-on rack /

tray installations and at 1000mm or every second fixing-rung interval for cables laid flat and also where installed vertically.

- iii) Different classes of services (e.g. power and instrumentation) shall not be installed on the same rack or tray.

e) Common Earthing for Racks and Trays

- i) Cables for final circuits installed on racks and trays shall, unless otherwise specified, be provided with an integral earth core or shall have a separate bare earth conductor per cable, or as indicated in the circuit diagram.
- ii) Multiple runs of heavy power feeder cables may share a common earth conductor comprising bare copper tape of at least 70mm² run along mesh type trays or ladder rack. (Perforated cable tray would normally carry light circuitry only and common earthing would not apply).
- iii) Earth tapes are to be fixed and bonded at regular intervals and the final earth connection shall comprise an appropriately sized bare copper earth-wire tail bonded to the common tape earth using a compression lug and high tensile bolt and nut arrangement.

f) Underground Cable

- i) Unless otherwise specified, cables installed earth trenches shall be buried at a depth of 750mm; multiple runs of cables shall be laid 150mm apart throughout the run.
- ii) Cables shall be drawn along the trench using rollers corner rollers, snatch blocks and skid plates as necessary.
- iii) Unless stated to the contrary, the Contractor shall carry out all excavations of cable trenching, including bedding, topping, backfilling and compaction, generally in accordance with SANS 1200 LC and SANS 1200 DA. Differing soil-type classifications shall be as specified in the bills of quantities.
- iv) The Contractor shall allow for all necessary removal of vegetation, roots and tree branches, hazard protection, drainage, including pumping, watching, lighting, barriers, disposal of spoil and vegetation, supply of fill, levelling of subsidence and 10mm thick temporary steel plates to allow vehicles of 3 tonnes maximum axle load and pedestrians to pass over excavations where these cross roads, driveways etc.
- v) Where applicable, the Contractor shall comply fully with Traffic Ordinances, the Mines and Works Act 1956 (Act 27 of 1956) and all other requirements at or near public roads, bridges, buildings and other structures.
- vi) No excavations shall be backfilled until the Engineer has the opportunity to inspect cables and has given permission to backfill.
- vii) The floor of the trench shall be free of stones and sharp projections. A 75mm layer of –6 fines sifted soil or no-sharps sand shall be applied (bedding), onto which the cables shall be laid. A further layer of the same material shall be laid to a depth of at least 75mm above the top of the cable(s).

viii) Dampened soil free from fibrous matter, rocks and large stones shall be backfilled on top of the cable(s) (or cable sleeve(s)), as follows:-

- Two 150mm hand-rammed layers to 93 % AASHO compaction
- Thereafter, well compacted power-rammed layers of not more than 150mm, to 93 % AASHO compaction.

The backfill shall be raised by approximately 50mm above the normal surface level to allow for settlement. Such raised surfaces shall be periodically levelled, as necessary, and finally levelled not less than 90 days after backfilling. Grassed surfaces shall be made good. Others will make good paved or concrete surfaces etc.

ix) Cable trenches may be hand or machine excavated and shall be of such a width as to afford a minimum of 150mm clearance between the cable(s) and the trench walls. Excavation within 600mm of other services shall only be done by hand.

x) Unsuitable soil and filthy material encountered during the execution of the Works shall not be deposited on the surface of any road or footpath, but shall immediately be carted away to a dumping site.

xi) The Contractor shall take all necessary steps to avoid the pollution of streams, drainage systems etc. by excavated soil and its dust.

xii) Where required, concrete protective cable tiles shall be installed 300mm over the tops of cables. These shall cover the full width of the layer of cables within the trench. Concrete cable protective tiles shall be of the interlocking type approximately 900mm long by 150mm wide with a suitable inscription on the upper side such as "Danger Electric Cables" or similar.

xiii) Where unsleeved cables cross other services, they shall be taken at least 500mm under such service. Interlocking concrete cable tiles shall be laid 300mm above the cables and shall extend 900mm each side of the crossing point.

g) Cable Markers and Tape

i) Cable markers shall be provided for all underground cable routes. Such markers shall be provided at each point of entry to any building, at either side of any road to rail crossing, at any change of direction of the cable, at intervals not exceeding 30m along any straight runs and over cable joints. Cable markers shall be made of concrete and cast in the form of a truncated pyramid, approximately 250mm high, 100mm square at the top and 150mm square at the base. The markers shall be provided with brass plates complete with direction arrows and suitably inscribed.

ii) Yellow 0,1mm thick cable marker tape with the words "Danger Electric Cable" printed continuously and depicting a skull and cross-bones, shall be laid at a depth of 300mm below the finished surface level and immediately above all cables and sleeve pipes. Should a roadway or paved area base layer exceed 300mm, the tape shall be laid immediately below the base.

h) Cable Sleeves

i) Cables sleeves shall be provided wherever required or indicated on drawings and also for all cables entering or leaving any building, crossing a road or other services. Such sleeves shall be supplied and installed by

the Contractor unless otherwise required. In all cases the Contractor shall ensure that all sleeves are installed in good time, in correct positions, and in the proper manner.

- ii) Where no details are given, the sleeves shall be of generous size and made of substantial material, which may be galvanised steel, ceramic, pitch fibre, high impact uPVC, corrugated high-density polyethylene (HDPE), etc., capable of withstanding any stresses to which they may be submitted, e.g. road compacting. Care shall be taken to ensure the easy passage of cable through the sleeves by providing large radius bends where necessary.
- iii) NB: For health reasons, the use of pipes containing asbestos is strictly forbidden.
- iv) The ends of all sleeves shall be sealed with non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed.

i) Earthworks by Others

Where trenches, sleeves etc. are provided by another contractor e.g., civils, the Contractor shall liaise and co-ordinate with such other party regarding general advices, sleeve positions, radii etc. Moreover, the Contractor shall stand by and ensure correct backfilling and the positioning of marker tape.

j) Cable Identification

A non-corrosive strap with the cable number, or circuit number, stamped or embossed upon it shall be provided at each end of the cable (and at joints, in cases where these are permitted).

12.6 Bus-Bar Feeders

12.6.1 General

- a) Bus-bar feeder systems shall comply with SANS 1195 or shall be authorised by SANS, and shall consist of metalclad copper bus-bars for voltages not greater than 1000V.
- b) Bus-bar feeder systems shall be used for the following:
 - Indoor and outdoor connections from transformer LV terminals to main LV switchboards
 - Horizontal indoor power distribution to workshop and factory machinery etc
 - Indoor lateral and vertical-riser feeders for distribution boards and MCCs
- c) All bends, accessories, take-off units, bus-bar sections/modules and so forth shall be a standard or pre-engineered component by the bus-bar trunking manufacturer; no site fabricated items will be allowed without the express permission of the Engineer in writing.

12.6.2 Construction Details

a) Enclosures

- i) Bus-bar systems for indoor use shall be enclosed in hot-dipped or pre-galvanised sheet metal casings finished in epoxy coating similarly to distribution boards. (See clause 12.4.1 (h)). Alternatively the casing shall

be of extruded aluminium. The bus-bar trunking shall be vermin proof, adequately ventilated and protected to IP30.

- ii) Outdoor, non-ventilated casings shall be constructed from 3CR12 corrosion resistant steel, finished as for indoor trunking, or alternatively, shall be of extruded aluminium, and protected to IP54 or better.
- iii) In all instances, metal enclosures shall be of adequate gauge and strength to withstand rough usage and the mechanical stresses of prospective fault conditions.
- iv) The casings shall be provided with heavy duty fixing lugs or similar suitable for M10 bolts or studding supports.
- v) Sections of bus-bar trunking shall be joined in an approved manner maintaining mechanical strength and protection levels.

b) Bus-Bars:

- i) Bus-bars shall be of high conductivity 99,9% pure copper of adequate section for the maximum current and short-circuit rating. Unless otherwise specified, the bars shall be mounted edge-wise (long side vertical).
- ii) The bars shall be supported in the casing by substantial high dielectric, non-tracking, and non-hygroscopic members at sufficient intervals to allow for mechanical stresses due to prospective fault conditions.
- iii) Joints in bus-bars shall overlap by a minimum length equal to twice the bar width. Contact surfaces shall be tinned using non-acid based flux, and bolted together with high-tensile cadmium plated bolts, nuts and spring washers.
- iv) As well as sizing for current rating, the bars shall be sized to accommodate the prospective fault level rating in accordance with clause 12.4.1 e), whichever size is the higher.
- v) Where installed, neutral bars shall be the same cross section as phase bars.
- vi) An earthbar shall be installed along the entire length of the bus-bar trunking and shall be sized in accordance with IEC 439.

c) Bends

Horizontal (flat) bends in the trunking system shall house bus-bars bent at the correct angle with the supports and casings made to suit, while vertical internal or external bends shall have the bars bolted together at the correct angle. Alternatively, bus-bar bends may be of the flexible laminated type.

d) Take-Off and Feeder Points

- i) Take-off points shall be pre-engineered and located to specific requirements by the bus-bar trunking manufacturer in the case of power feeders for distribution boards in risers etc, or shall comprise shrouded plug-in arrangements at regular intervals for machine shops etc.
- ii) The take-off unit shall consist of a suitably rated MCCB with contacts to satisfy the requirements for a switch-disconnector, housed in a sheet steel or polycarbonate enclosure arranged for bolting directly to the bus-bar

trunking in the case of tap-off type units, or permanently fixed in the case of pre-engineered take-offs.

- iii) Feeder end boxes shall be suitable for terminating feeder cables or feeder bus-bars, as applicable.

e) Expansion Joints

Expansion joints to allow for thermal expansion and contraction for a temperature range of between 0°C and 90°C in the bus-bars and 0°C and 45°C in the enclosure shall be provided at intervals per manufacturer's recommendation, but in any event, not exceeding every 10 metres. The full rating of all current carrying parts shall be maintained through the joint as well as casing integrity and level of protection.

f) Fire Barriers

Fire compartmentation shall be maintained at wall and floor penetrations of bus-bar trunking by the use of 4-hour rated fire barriers installed centre with the applicable partition wall or floor slab. The Contractor shall ensure that the main contractor is timeously informed of the need to make good around such penetrations; this information shall be put in writing with a copy to the Engineer.

12.6.3 Installation and Testing

a) Installation

Bus-bar trunking shall be fixed directly to walls or other structural members or shall be suspended on galvanised studding, supported on channels, angle iron etc as dictated by installation conditions and requirements, and as may be specified in the Detailed Specification or drawings.

b) Testing

Completed bus-bar systems shall be subjected to a test voltage of 2,5kV rms for one minute in accordance with SANS 1195.

12.6.4 Fabrication Drawings

- a) Where it is necessary to have bus-bar trunking prefabricated prior to delivery to Site, the Contractor shall liaise with all relevant parties to have fabrication drawings prepared (usually by the bus-bar trunking manufacturer), viz.: transformer supplier, main and sub-main LV board supplier, etc as the case may be.
- b) The Contractor shall check all drawing details, including on-site dimensions, coordination with other services etc, rectify where necessary and submit to the Engineer for approval. The Engineer will approve the general layout of the system only. The Contractor shall be fully responsible for the correctness of all dimensions etc.

12.7 Tubular Conduit Wireways

12.7.1 Types and Applications

a) Screwed Conduit

Heavy gauge screwed welded (HGSW) steel conduit and associated fittings shall be to SANS 1065-1 and shall be black enamelled or hot-dipped galvanised as specified. No conduit of less than 20mm diameter shall be used.

HGSW conduit shall be used for all general applications run either surface on walls, ceilings, on machinery etc, or else installed flush in walls, cast into concrete slabs etc.

b) Plain End Conduit

Plain end (non-screwed) steel conduit shall be to SANS 1065-1 with a minimum wall thickness of 0,9mm. Only hot-dipped galvanised conduit of 20mm diameter minimum size will be permitted.

Plain end conduit shall be used for all general applications, except heavy industrial environments or flameproof installations, run surface on walls and ceilings, or else installed flush in walls, cast into concrete slabs etc.

c) Non-Metallic Conduit

Plastic conduit shall be to SANS 950. No conduit smaller than 20mm diameter shall be used.

Plastic conduit shall be used for general applications, except any industrial or flameproof installation or any surface installation on walls, machinery etc. Non-metallic conduit shall be run surface only on ceilings or in ceiling voids, chased into walls, cast into concrete slabs etc.

d) Flexible Conduit

Flexible conduit shall be of the orange PVC covered spiral metal type, as Kopex, Adaptaflex or equal, with an internal diameter of at least 15mm. Flexible conduit connectors shall be of the gland or screw-in type manufactured from either brass or mild steel plated with zinc or cadmium.

Flexible conduit shall be used to form the final connection to equipment that has to be moved frequently to enable adjustments to be made, for the connection of motors or any other vibrating equipment, for the connection of thermostats and sensors on equipment, for stove and similar appliance connections etc.

12.7.2 General Installation Details

Insofar as relevant conduit types apply as per clause 12.7.1, the following general installation details shall apply:

- a) No manufactured bends less than 32mm diameter or any inspection elbows or tees are to be used.
- b) Open ends of conduits for future extensions and conduit and accessory boxes shall, during the building process, be temporarily plugged to prevent the ingress of moisture, rubble etc.

- c) Where conduit crosses an expansion joint in a building or structure, the following method shall be used:
- An adaptable box shall be installed at a suitable position within 2m of the expansion joint and a draw box and a conduit sleeve one size larger than the circuit conduit shall be installed from the draw box to the edge of the expansion joint on the draw box side
 - The circuit conduit shall pass across the joint and through the sleeve and project 30-35mm inside the box where the end shall be bushed
 - For metallic conduits, an earth clip shall be secured to the circuit conduit end in the draw box and this shall be bonded to the box with a minimum 2,5mm² jumper
 - In addition, for metallic conduits, an earth wire shall be installed between the fitting outlet boxes either side of the expansion joint
 - Adjacent multiple runs of conduits which are to cross expansion joints should preferably be taken via one large adaptable box, across the expansion joint, into a second large adaptable/draw box.
- d) All accessory boxes for switches and socket outlets etc shall be made of pressed galvanised steel and are to be provided with earth studs.
- e) No portion of the conduit installation may be installed closer than 150mm to any other service, including gas, water etc. No wireway carrying mains voltage cables shall be installed closer than 150mm to any communications/data wireway or cable etc, except in the case of multi-service power skirting or similar.
- f) 'Unwired' conduits for other services shall be provided with rustless steel draw wires.
- g) Where necessary, draw boxes shall be installed to facilitate the easy drawing-in of wiring and/or to avoid pulling wires through more than two right angled bends or the aggregate thereof. Adjacent multiple runs of conduit, which requires draw boxes should preferably be taken via one large draw-box. Where possible, draw boxes are to be installed at inconspicuous positions away from general view.
- h) 25% spare conduits, subject to a minimum of two, shall be installed from wall mounting distribution boards into the ceiling void for possible future additions. A coupling with a temporary plug shall be fitted to the ends of spare conduits.

12.7.3

Flush Conduit Installations

Insofar as the relevant conduit types apply as per clause 12.7.1, the following installation details shall apply to flush conduit installations:

- a) Where conduits are chased into brick walls or similar they shall be adequately secured with crampets or other approved devices driven into the wall fabric and shall further be secured at strategic points by mortar. The clearance between the finished wall surface and the conduit shall be not less than 12mm. Only power tool chasing machines shall be used for making chases. (E.g.: angle grinders).

- b) Accessory boxes shall be fixed square and mortared in. Concrete surfaces, columns and face brick surfaces shall not be chased without the written permission of the Engineer in each case.
- c) The building contractor will make good all normal chasing and cutting away except that the Contractor shall be held responsible for the cost of work done by the building contractor due to faulty setting out, redundant chases or late installation of conduits and accessories.
- d) Conduits installed within concrete slabs, beams, columns or walls shall be firmly fixed in position before the concrete is cast. Adequate fixings and/or spacer blocks shall be employed to prevent conduits 'creeping' to the surface. Conduit must not be fixed longitudinally together with reinforcement rods.
- e) The general disposition of conduits within the slabs shall be agreed upon before installation between the Engineer, structural engineer and the Contractor. Furthermore, where such conduits occur in large concentrations, or where large diameter conduits (32mm dia. or larger) are installed, the Contractor shall obtain the approval of the Engineer for the positioning of such conduits. Generally, however, conduits shall be installed in the middle or neutral axis of the slab thickness and extension boxes or extension rings shall be provided for as necessary.
- f) Where conduit runs occur in groups or in large concentrations (e.g. near distribution boards, draw-boxes or in similar situations), they shall be fixed with a clearance between adjacent conduits of not less than one conduit diameter to permit adequate penetration of concrete.
- g) Conduit may be installed in surface beds provided that the conduits are clear of contact with ground and are completely encased in mass concrete.
- h) Conduits may only be installed directly into floor screeds where a cover of at least 40mm can be affected. For clearances of 20-40mm, "chicken wire" shall be used as a cover over the conduit to act as a screed binder. For clearance less than 20mm, the conduit may be chased into the slab, provided the written permission of the Engineer is obtained in each case.
- i) Conduit crossings in screed shall be avoided as far as possible. Where this is unavoidable, one conduit may be set under the other one and chased into the slab, provided the written permission of the Engineer is obtained in each case.
- j) Conduits shall be firmly fixed to slabs intended to receive screed by means of half saddles or similar.
- k) Conduit boxes, draw-boxes etc. installed on shuttering decks or wall shutters shall be suitably sealed against the ingress of moisture and vibrated concrete with dampened paper rammed in them, and shall be securely fixed to the shuttering by means of lashing with galvanized steel wire (except in the case of off-shutter ceilings) or else by temporarily fixing the box to the shuttering by screws through the shuttering into the fixing lugs of the box. It is of the utmost importance that fixing screws or lashings be released immediately the concrete has been allowed to set and before the shuttering is struck.

Where fibreglass or other pre-formed plastic shuttering is used by the builder, equipment shall be fixed to the reinforcement steel only and the equipment/box shall be arranged to press firmly against the shuttering. No holes shall be made in the shuttering.

The Contractor shall stand by when concrete is being poured in order to rectify any defects that may occur such as loose boxes or displaced upright conduits (See also item 11.3).

- l) All conduit boxes and accessory boxes shall be finished flush with the finished plaster work and the Contractor shall co-operate with the building contractor to this end. Where necessary, extension plates or rings shall be fitted to meet this requirement.

12.7.4 Surface Conduit Installations

Insofar as the relevant conduit types apply as per clause 12.7.1, the following details shall apply to surface conduit installations:

- a) Conduit run surface on walls, floors, ceilings, or in accessible ceiling voids, etc. shall be installed in a neat manner running generally with the building lines. The conduits shall be vertically plumb and horizontally level as applicable.
- b) Bends in multiple runs of conduit shall have following bends. Other right angle bends shall be standard machine made. In all instances the installation shall present a neat and workmanlike appearance.
- c) Evenly spaced spacer bar saddles shall effect fixing of tubing. Light gauge saddles may be used for general internal installation while heavy base saddles are to be used for external installations and industrial applications.
- d) Galvanized conduit shall be used for all surface installations, as follows: -
 - In damp or external areas
 - Within 50 km of the coast
 - In kitchens, laundries and boiler rooms
 - Where exposed to humidity, such as plenum chambers
 - In buildings where animals are housed, e.g.: kennels, cattle/sheep pens etc.
- e) Unless otherwise specified, all surface mounted metallic conduits and accessories shall be painted after installation. Conduits shall be cleaned, degreased and de-rusted and finished with 2-coats of brush-applied enamel paint. Galvanised steel shall be bristle-scrubbed with solvent detergent complying with SANS 1344 and rinsed with clean water to achieve a water-break free surface prior to painting.

For industrial installations, the following colours shall be used:

SERVICE	COLOUR	SANS 1091 REF.
Electrical	Light Orange	B26
Instrumentation	Light Blue	
Fire Alarms	Red	A11
Communications and Data	White	G80

For non-industrial installations, the colours shall be specified in the Detailed Specification.

12.7.5 Steel Conduit

Insofar as the relevant conduit types apply as per clause 12.7.1, the following installation details shall apply to steel conduit installations;

- a) HGSW conduit shall be cut square and clean before threading. Threads shall be made using suitable conduit thread dies and the liberal application of cutting grease or similar. The length of thread shall be such as to permit conduits to be firmly butted together in couplings and hard against the shoulders of threaded conduit box spouts. The ends of all cut lengths of conduit shall be reamed free from burrs and any loose swarf shall be removed from inside the conduit. Running joints in conduit shall be securely locked with a conduit lock nut.
- b) Terminations into non-threaded equipment and accessories shall be mechanically secure and electrically continuous. Terminations may be threaded and locknuted on both sides of the termination point together with a brass female bush. Alternatively terminations shall be made with couplings and brass male bushes. All mating faces are to be thoroughly cleaned of paint, couplings being filed flat and free from unevenness at the mating face. All conduits shall be earth bonded at distribution boards using copper tape and wire.
- c) Exposed threads of screwed conduit and damaged paint or galvanised surfaces shall be painted with red-lead or zinc rich paint to prevent rust.
- d) Couplings and box entries of plain-ended conduit in cast-in situations shall be taped up with adhesive PVC tape to prevent the ingress of moisture or vibrated concrete.
- e) All bends and sets shall be undertaken using bending apparatus suited for the purpose. Plain-end conduit bends shall be made with benders recommended by the conduit manufacturer.

Any damaged conduit resulting from incorrect bending methods shall be completely removed and replaced, including any wiring installed, all at the Contractor's expense.
- f) Mechanical and electrical continuity shall be maintained throughout all steel conduit installations.
- g) Only HGSW conduit shall be used for ;-
 - Flameproof installations
 - Load-bearing situations
 - Suspension pendants
 - Damp or exterior surface areas

12.7.6

Non-metallic Conduit

The following installation details shall apply to non-metallic conduit as outlined in 12.7.1 c):-

- a) Unless otherwise specified, only steel accessory boxes shall be used in conjunction with plastic conduit installations.
- b) Hand bending, using a bending spring, may be used for conduits up to and including 25mm diameter. Above this size, the appropriate manufactured bend/accessory must be used.

- c) Tubing is to be cut square and clean using a fine-toothed hacksaw, and all burrs and loose material removed. The correct adhesive is to be used on clean and dry surfaces with all excess adhesive being wiped off after fitting together.
- d) Plastic conduit and accessories are not to be used for mechanical load-bearing, luminaire support etc, nor are they to be used where they could be subject to temperatures below -10°C or above 70°C.

12.7.7 Flexible Conduit

The following installation details shall apply to flexible conduit as outlined in 12.7.1 d):-

- a) In installations where the equipment has to be moved frequently to enable adjustment during normal operation, for the connection of motors or any other vibrating equipment, for the connection of thermostats and sensors on equipment, for stove connections and where otherwise required by the Engineer, flexible conduit shall be used for the final connection to the equipment.
- b) Flexible conduit shall preferably be connected to the final connection point from a local draw-box. The flexible conduit may be connected directly to the end of a conduit if an existing draw-box is available within 2m of the junction and if the flexible conduit can easily be rewired.
- c) Flexible conduit shall be metal-reinforced plastic conduit (Kopex, Adaptaflex or equal) orange PVC-covered spiral metal conduit with an internal diameter of at least 15mm, unless approved to the contrary.
- d) Connectors for coupling to the flexible conduit shall be of the gland or screw-in type, manufactured of either brass or mild steel plated with either zinc or cadmium.

12.8 Trunking Wireways

12.8.1 Scope

This section describes the following types of wiring trunking:-

- Standard wiring trunking
- Lighting channel
- Power skirting, dado and bench-top trunking
- Underfloor trunking

12.8.2 Standard Wiring Trunking

- a) Wiring trunking and accessories shall be fabricated from folded or cold-rolled sheet steel. The trunking manufacturer shall supply all bends, tees, stop-ends etc. No accessory shall be made up where a manufactured accessory is available.
- b) Any made up accessories shall be neatly fabricated and shall be brazed or strongly pop-riveted at joining edges.
- c) Accessories and sections of trunking shall be coupled with coupling pieces and earth bonded together with copper bonding links. In addition, the links shall be bonded to the trunking main earth or largest circuit earth wire with a jumper of at least 2,5mm².

- d) The maximum number of circuit and earth wires that may be installed into any trunking shall be such that the total overall cross-sectional area of the wiring including the insulation does not exceed 45% of the free area of the trunking.
- e) With the exception of underfloor trunking and loosely filled "opening-up" trunking, wiring retainers shall be installed every metre of run and at other positions as required.
- f) The trunking shall be installed in a neat and workmanlike manner on ceilings, walls, plant machinery etc., as indicated in the drawings.
- g) All standard trunking used in industrial applications shall be finished in the colour code appropriate to the service (refer to 12.7.4 (e)).
- h) Where channel passes through a "fire-wall" the channel lid shall be cut 100mm either side of the penetration and the wall entry around the channel shall be sealed by the building contractor. The Contractor shall supply and install suitable fire-barriers inside the channel. These shall consist of intumescent or other approved fire resistant material, as supplied by PH Protection Plaster Systems (Pty) Ltd of Johannesburg, Pyro-Cote cc of Durban, or equal and approved and installed in accordance with the supplier's recommendations.

12.8.3

Lighting Channel

a) General

- i) Lighting channel and accessories shall be "Cabstrut" or equal and approved, and shall be manufactured from cold-rolled steel sheet and galvanized. For industrial installations and elsewhere as specified the channel shall be epoxy coated light orange (colour ref. B26 according to SANS 1091).
- ii) Unless otherwise required the dimensions of the channel shall be 41,3mm x 41,3mm.
- iii) Lighting fittings or pendant drop conduits shall be fixed directly to "opening-down" channel using special connecting nipples as supplied by the channel manufacturer. Alternatively, fittings may be fixed to the solid underside of channel installed "opening-up" using bushed entries and screws, nuts and washers. Self-tapping screws shall not be used.
- iv) Conduit connections to wiring channels shall be terminated directly into the channel using a screwed and bushed entry. Alternatively, where channels are fixed surface directly to a soffit, entry may be effected from a flush conduit box through a bushed hole in the back of the channel.

b) Surface Installations

- i) Self supporting lighting channel shall be manufactured from cold-rolled steel of thickness at least 2,5mm, and shall be fixed in such a manner that the maximum deflection recommended by the channel manufacturer is not exceeded with all wiring and fittings installed.
- ii) Fixings shall be by stirrups supported from structural members via threaded steel rod of at least 10mm diameter, or 20mm diameter conduit. Alternative or additional supports shall be effected by girder clamps etc. Cartridge pin fixings shall not be permitted without the prior written approval of the Engineer.

- iii) Where required, channel installed directly to a soffit shall be fixed at intervals not exceeding 1m subject to a minimum of two substantial fixings to every accessory or section of channel. Channel fixed in this fashion may be not less than 1,6mm thick.
- iv) Clip-in lidding of plastic or of zinc-coated metal, as specified, shall be installed over all faces of the channel left open after the installation of fittings etc.

c) Flush Installation

- i) Lighting channel installed flush, either in or forming an integral part of a suspended ceiling shall be manufactured from minimum cold-rolled or folded sheet steel of thickness not less than 1,6mm.
- ii) Where the channel is cast into concrete, fastening straps shall be provided every 600mm as supplied by the manufacturer of the channel. The channel shall be firmly fixed to the shuttering by galvanized steel wire lashing or by screws fixed through the concrete insert lugs. The channel shall be suitably sealed against the ingress of vibrated concrete by the use of dampened paper or expanded polystyrene inserts.
- iii) Where the ceiling finish is "off-shutter", narrow clip-in plastic or metal lid shall be used. This shall be grey for non-painted ceilings and white for painted ceilings. Wire lashings may not be used for fixing channels to shuttering in "off-shutter" areas.
- iv) Where plaster finish is to be applied, the plaster shall be taken up to the edges of the channel. Overlapping metal lidding finished white shall be used, fixed over the opening by means of special extension screws into fixing nuts installed in the channel.
- v) For suspended-ceiling lighting channels, the channels will be supplied and installed by the ceiling erector, unless otherwise specified.

White plastic clip-in lidding shall be used for all suspended-ceiling lighting channels. The Contractor shall supply and fit the lidding unless otherwise specified.

- vi) In the case of mullion partitioning the mullion may be utilized as a wiring channel where specified. For other types of partitioning, conduit switch-drops shall be used. Any entry into the lighting channel shall be suitably bushed to obviate abrasion of wiring.

12.8.4

Power Skirting and Dado Height Trunking

a) General

- i) Power skirting and dado height trunking shall, unless otherwise specified, be formed from folded and welded pre-galvanized sheet steel of thickness not less than 1,2mm, to form two or three equal compartments designed for power services, socket outlets etc., (upper compartment) and communications/data services (lower compartment(s)). The power skirting shall be finished in baked enamel of colour(s) as stated in the Detailed Specification. The paintwork shall be in accordance with 12.4.1 (h) with due account being taken of the pre-galvanizing. The trunking shall be 150-225mm high x 50-55mm deep with fixed partitions to divide it into two or three compartments. The compartments shall each be provided with separate removable covers.
- ii) Where a building module is applicable, the power compartment shall have provision for 16 A switched socket outlets at the module interval, or where the module interval exceeds 2m, twice every module interval. Socket outlet positions shall be centred between the window mullion or column modules. At the mullion or column position, a permanently fixed 250mm wide cover shall be provided across all compartments to permit the erection of partitions etc., without interfering with accessibility into the power skirting.
- iii) Socket outlets shall be 16 A 3-pin and shall be attached to a fixing grid or mounting bracket in the trunking body. The cover shall be pre-punched to accept the socket outlet and shall be fixed both to the trunking body and socket outlet fixing grid. Wiring terminals shall be of the recessed type, or alternatively fitted with an insulated cover, to prevent accidental contact with bare earth wiring that may be installed or disturbed while adjacent circuits are alive.
- iv) Where the trunking is a non-modular type, the punched socket outlet cover shall normally be 250mm long. Where it is of the modular type, the power section cover between the over-lapping covers shall be in one piece. Irrespective of whether socket outlets are indicated or not, full facilities including blanked off pre-punched covers shall be provided at the spacings specified herein.

Unless otherwise required, provisions for telephone and data outlets shall comprise a blank plate, or plates, mounted in line with socket outlets.

b) Installation

- i) Power skirting shall, unless otherwise required, be installed surface against the wall at finished floor level. Where vinyl tiles or other fixed finish is to be laid, the power skirting shall be laid on top of the tiles. Where carpeting is specified, the power skirting shall be installed onto the screed before the installation of carpets.
- ii) Dado trunking shall be installed surface on the wall at 900mm above finished floor level (to underside), or as otherwise specified.
- iii) Fixings, suitable for the particular application, shall be provided at intervals not exceeding 1m. Subject to a minimum of two substantial fixings to each accessory or section of trunking.

- iv) Conduit entry into power skirting installed along brick or concrete walling shall be effected via a bushed entry from a conduit box or standard 100mm x 50mm switch box mounted in the wall behind the respective compartment.
- v) Conduit entry into power skirting installed along sheet metal curtain walling or similar shall be effected via a bushed entry from a conduit box, or similar, mounted in the floor under the power skirting. Wiring to the upper compartment(s) shall pass through a short conduit link within the lower communication(s) compartment(s). The conduit links shall be installed towards the back of the lower compartment(s) to afford adequate space for wiring to pass.
- vi) The trunking main earth wire immediately adjacent to the socket outlet positions including the socket outlet earth jumper shall be suitably sleeved at the tee-off to prevent accidental contact with live terminals.
- vii) All covers shall be adequately bonded to earth either through the fixing screws or a separate earth wire jumper fixed to an earthing stud brazed, at the manufacturer's works, to the lid. Where necessary, power skirting covers shall be specially ordered to include earthing studs.

c) Bench-Top Trunking

Where called for, bench-top socket outlet trunking shall be installed along bench tops etc, in workshops and laboratories. The general construction, socket outlet mounting and installation procedure shall be similar to power skirting or dado trunking. A detail of compartments, sizes etc, and shall be as detailed in the drawings or specified in the Detailed Specification.

12.8.5

Underfloor Trunking

a) General

- i) Several types of underfloor trunking are available and in the main, the choice depends upon certain structural restraints as floor type, screed thickness etc. Therefore the exact type to be used will be specified in the Detailed Specification or drawings.
- ii) Unless otherwise specified, the trunking shall be manufactured from pre-galvanized folded sheet steel and shall be single, double or triple compartment as specified.
- iii) Pre-formed outlets, suitably blanked off, shall be provided at intervals to suit the particular application.
- iv) Flush floor level junction boxes shall have a removable trafficable cover and shall be designed to accept a portion of the floor tile, carpet or similar. The Contractor must liaise with the Main Contractor to determine the thickness of the floor finish.
- v) Multi-channel junction boxes shall be so designed that the compartmentalisation is continued through these accessories.
- vi) Socket outlets, telephone outlets and data outlets shall be provided where required in surface floor level pedestals or recessed floor boxes as specified. Suitable barriers shall be included to segregate different classes of services.

b) Installation

- i) Trunking designed to be fully built into the screed shall be fixed to the slab surface by suitable straps or clips. A topping of at least 50mm of screed cover the trunking shall be applied. Where a cover of less than 50mm, but exceeding 25mm occurs, expanded metal shall be applied over the trunking to act as a screed binder. Where less than 25mm of screed topping occurs, the trunking shall be installed into the concrete slab to achieve at least the minimum cover. The written permission of the Engineer shall be obtained in each case.
- ii) Trunking designed to be set flush with the screed surface shall be installed straight and level on mortar bedding on the slab. The trunking shall be slightly dove-tailed in section or shall have other suitable means to ensure that the trunking will remain firmly fixed into the screed.
- iii) The Contractor shall obtain the screed finish datum line from the building contractor for levelling trunking and junction boxes.

12.9 General Wiring

12.9.1 General Applications

- a) For general applications, 600/1000 V PVC insulated single core stranded copper conductors shall be used. In situations where high ambient temperatures are likely to be encountered, such as the enclosures of certain types on incandescent lighting fittings, ceiling voids of metal roofed buildings, etc., silicon or butyl insulated single core stranded conductor cables shall be used. All wiring cables shall bear the appropriate SABS or SANS mark and shall be delivered to Site with seals intact.
- b) No cable of size smaller than 2,5mm² shall be used. The current carrying capacity of wiring shall comply with the requirements of SANS 10142-1:2003, particular regard being given to volt drop limitation and to derating due to bunching of cables and ambient temperatures.

12.9.2 Installation

- a) Wiring within conduit shall be by means of the looping-in system. Joints will only be permitted in special circumstances and where accessible, subject to the approval of the Engineer in writing. Wires shall not be allowed to become twisted or tangled within the conduit when drawing in, and lubricating agents shall not be used.
- b) Where earth conductors are looped between terminals of equipment, the conductor shall either remain unbroken in the terminal, or shall be twisted together and ferruled or soldered to ensure that earth continuity is maintained when the conductors are removed from the terminal(s).
- c) Unless otherwise indicated in the drawings, no more than one circuit shall be run in one conduit.
- d) Vertical runs of wiring shall be provided with a suitable stress relieving arrangement at intervals not exceeding 15m.
- e) Within wiring trunkings, each separate circuit of wiring shall be neatly strapped or laced together and shall be so disposed as to afford easy removal. Adhesive insulating tape or similar shall not be used for binding of circuit wires.

12.9.3 Wire Markers

All wires in industrial installations, and where otherwise specified, are to be provided with closed-sleeve markers at each feeder termination point, including each leg of looped wires. The markers shall indicate the relevant distribution board and circuit number, e.g.: "DB-AP/P9" etc.

12.10 General Earthing

12.10.1 General

The installation shall be effectively earthed in accordance with the requirements of SANS 10142-1:2003 and the local supply authority. All metallic hot and cold water pipes and waste pipes shall be bonded with copper tape clamped by means of a brass bolt and nut and earthed. Metal roofs, gutters, and downpipes shall be bonded together and earthed.

12.10.2 Earth Continuity Conductors

- a) Separate bare copper earth continuity conductors shall be run with all multi-core cables (where no earth core is incorporated), and green/yellow PVC insulated earth conductors, or bare earthwires, as specified, shall be installed with all mains circuits, sub-circuits and final circuits wired with PVC insulated conductors in conduit or trunking wireways.
- b) Only one earth conductor is required per group of conductors run in one wireway provided that such earth conductor is not less than half the cross sectional area of the largest conductor in the group (subject to a minimum area of 2,5mm²), and provided the earthing complies with the requirements of SANS 10142-1:2003. Teed off connections shall be undertaken using crimped tee-ferrules, or shall be soldered. Under no circumstances shall the common earth be broken.
- c) Where practicable, common earth continuity conductors shall be run as a "ring main".

12.11 Luminaires

12.11.1 General

- a) Luminaires shall, unless otherwise specified, be supplied by the Contractor in accordance with the Luminaire Schedule. All luminaires shall bear the SABS "S" safety mark and, where applicable, the SABS "A" approved performance mark.
- b) Class A2 electronic ballasts supplied with luminaires must bear a SABS, IEC or VDE mark. Any other alternative ballasts may be submitted for approval. Preferred ballasts are:
 - Tridonic
 - Vossloh Schwabe
 - Philips

NOTE: No-name brands and brands of dubious quality and origin are not acceptable.

- c) All luminaires shall be fitted with the appropriate lamps.

- i) Unless otherwise specified, fluorescent lamps shall be “cool white”, colour temperature 4300°K with a minimum colour rendering index (Ra) of 64.
 - ii) Dichroic lamps shall be of the sealed type. Open reflectors will not be permitted.
 - iii) Unless otherwise agreed in writing by the Engineer, only the following makes of lamps will be permitted:-
 - Osram
 - Sylvania
 - Philips
 - GEC
- c) Linear tubular fluorescent lamps shall have bi-pin end cap arrangements. The lamp holders shall be of the telescopic spring-loaded type.
- d) Lenses
- i) Prismatic, opal and clear lenses shall be manufactured from UV stabilised high-impact acrylic material for general luminaires.
 - ii) Where specified, luminaires, floodlights and lanterns shall be fitted with clear glass or clear tempered glass lenses as required.
 - iii) All tungsten halogen fittings shall be complete with glass lenses.
- e) Streetlight and area lighting post-top lanterns shall be in accordance with the Detailed Specification and/or drawings.
- Lantern ballasts shall have tapplings for 95% and 100% of the nominal voltage, unless otherwise specified.
- f) For ease of maintenance, luminaires and lamps in the following classes shall be from one single manufacturer / supplier per class;
- i) Fluorescent luminaires and general incandescent fittings.
 - ii) Indoor decorative / display luminaires (downlighters, decorative spotlights etc.)
 - iii) Outdoor lanterns, bollards and floodlights
 - iv) Industrial high-bay luminaires
 - v) Operating theatre fittings
 - vi) Medical examination lamps
 - vii) Dark Room lights
 - viii) Other specialised luminaires as specified (E.g.: stage lighting etc.).

12.11.2 Installation of Luminaires

a) General

Where possible, all luminaire outlets shall terminate in standard round boxes to which the fitting shall be fixed in addition to other fixings that may be required. Where conduit is run in roof spaces, or where conduits are cast into screeds and not directly into the slab, back-entry conduit boxes are to be used which shall be so installed as to be flush with the finished ceiling.

b) Mounting

- i) Fluorescent fittings shall be fixed to one conduit box in the centre with two further independent fixings either side, one sixth of the fitting length from each end of the fitting. Fittings of 300mm or wider shall be fixed with two pairs of fixings.
- ii) Where fluorescent fittings are fixed in continuous rows, wiring may be carried out from one outlet and then wired through the channels of the fittings. The entry from one channel to another shall be suitable bushed and the internal wiring shall be clipped to the insides of the channels.
- iii) Corrosion proof and explosion proof type fluorescent luminaires shall be fixed using external stirrups or brackets. The wiring entry must be made via the gland entry arrangement using suitable multicore wiring (e.g. "Cabtyre", PVC/PVC etc.) routed from an adjacent conduit box or Pratlley type box, as appropriate. Under no circumstances shall the body of the fitting be pierced for any reason whatsoever.
- iv) In surface installations to incandescent bulkhead type fittings, the conduit shall not enter the fitting directly but shall terminate in an adjacent conduit box; one outgoing way of the conduit box being terminated in the fitting. A fixed porcelain or plastic terminal block within the conduit box and heat resisting wire, (e.g. silicon insulated), shall form the final connection to the fitting. Alternatively, the whole circuit wiring shall be heat resistant (See clause 12.9 1(a)).
- v) Where luminaires are mounted onto conduit boxes in external or potentially damp situations, a suitable neoprene gasket seal or other approved means shall be used at the junction of the fitting and the conduit box.
- vi) The mounting positions of the luminaires shall be verified on Site with the Engineer before installation commences. Fittings will normally be mounted in an even or symmetrical pattern in relation to the particular area having due consideration for architectural features, beams, ceiling tiles, etc.
- vii) Where fluorescent fittings are specified to be suspended on pendants the Contractor shall provide at least two pendants for each fitting, such pendants consisting of 20mm diameter conduit finished in white enamel for commercial and domestic installations and electrical standard light orange for industrial installations.

The wiring to the fitting shall be taken through one of these pendants. The pendants shall be secured to the outlet box or fixing surface by means of domelids. Where the length of the pendants exceeds 0,6m. Domelids shall be of the swivel type. The domelids shall be painted to match the pendants.

- viii) Luminaires shall not be mounted directly to ceiling boards and suitable wooden inserts are to be supplied and installed by the Contractor for this purpose. Alternatively, fixings may be made into branderling where convenient.
- ix) Heavy industrial high-bay luminaires, floodlights etc, shall be fixed to substantial steel brackets or "Cabstrut" type channel or as indicated in the drawings or Detailed Specification.
- x) Where specified, luminaires shall be fed via a 5 Amp socket outlet mounted close to the fitting. The Contractor is advised to procure luminaires with suitable 3-core flexible cords with rubber clad plug-tops attached, as necessary.

c) Mounting Facilities

Where no facilities exist for supporting fittings, the Contractor shall supply and install brackets, hangers, angle irons, wooden battens inside ceiling space or other means as approved by the Engineer.

d) Fixings

Fixings direct to conduit boxes shall consist of cadmium plated or sheradised steel screws screwed into the conduit box fixing lugs. Extra independent fixings into concrete or brick shall consist of suitable fibre or plastic fixing plugs and steel or brass wood screws. Wooden fixing plugs shall not be used. Fixings for fittings over 10kg in mass shall be of the self-drill anchor or expanding bolt-type. Fixings into hollow blocks etc, shall consist of steel screws secured into the hollow cavity with a spring loaded toggle-nut or other approved cavity fixing device.

Cartridge pin fixings shall not be used unless the prior approval of the Engineer is obtained in writing.

Refer also to clause 12.17 (Fixings and supports).

12.11.3 Poles and Masts

- a) Street lighting and area-lighting poles and masts shall be supplied in accordance with the Detailed Specification and/or drawings.
- b) All poles, masts, outreach arms etc. shall comply fully with all relevant SANS Specifications and Codes of Practice and shall be manufactured from:
 - Galvanised Steel
 - Self-Coloured fibre-glass
 - Aluminium,

As detailed.

- c) Poles and masts shall be suitable for fixing to a concrete surface (this method being restricted to post-top lanterns of no more than 4m height), or burying the "root" in soil.

Where buried, each pole must be provided with a suitable base-plate complete with drain hole. Baseplates shall be secured with a minimum of 2 off 20mm dia. hook bolts.

- d) Spigots shall be provided to suit the specified lantern. Particular care shall be taken to establish the exact diameter and length of the spigot or spigots required such that the luminaire fits neatly up against the shoulder formed between the pole and the spigots. Care shall be taken to avoid damage to the spigots during transport, storage and erection.
- e) Galvanised poles shall be provided with a "corrosion collar" which must extend at least 150mm below and above finished ground level.

Unless otherwise stated, galvanised poles will not require painting.

- f) After galvanising, poles shall be stacked and transported in such a way as to minimise mechanical damage to the zinc coating. In particular, poles shall not be stored in direct contact with the ground and if stacked on top of each other, wood spacers shall be used to prevent the formation of white rust. Poles shall be carefully handled at all times and shall not be dragged along the ground in such a way that the coating may be damaged.

Notwithstanding the foregoing, any small areas of the galvanised coating which have become damaged shall be repaired by shot blasting and zinc spraying to a nominal thickness of not less than 0,1mm. Care shall be taken to ensure that all loose flakes of coating around the area to be repaired are removed prior to zinc spraying. Any signs of substantial damage to the galvanised coating, as determined by the Engineer, will result in the pole being rejected.

- h) Poles and masts shall be provided with suitable cable entries and access openings with fixing chassis suitable for the connection of cables and the installation of MCBs. Access openings shall be provided with a cover plate of the same material as the pole. Covers shall be provided with suitable gaskets and means of fixing to the approval of the Engineer.
- i) Unless otherwise specified no cable glands or gland plates are required for the termination of PVC/SWA/PVC cables. The cable shall be brought up to a convenient position adjacent to the lower section of the access opening. The outer PVC sheath shall be stripped back and the steel wire armouring pulled away from around the cables, twisted into compact tails and bonded together by means of an adequately sized line tap.

A separate earth conductor shall be taken from this line tap to the earth stud in the pole base compartment. Phase and neutral conductors shall be jointed using shrouded line taps and the cables neatly secured to the bottom of the fixing chassis by means of saddles.

- j) Poles shall be planted in the positions indicated on the drawings. They shall be planted absolutely plumb with the outreach, where applicable, at right angles to the roadway edge. The root depth shall be as recommended by the manufacturer.

Should any pole position coincide with trees, building canopies, driveway entrances, overhead conductors or other obstacles, an alternative position is to be confirmed with the Engineer before excavation of the pole hole.

Poles shall be carefully aligned with each other to form straight lines or smooth curves generally following the alignment of the associated roads. The planting depth shall be carefully controlled to ensure that all luminaires will be at the same height above the level of the roadway, parking area etc.

- k) Care shall be taken when backfilling around the pole to ensure that compaction is even all around the pole and is to the requirements specified in sub-clause

12.5.5 f) viii). Where poles are to be planted in fill material, on ramps, etc., one pocket of dry cement shall be mixed with the backfill material before commencing backfilling and compaction. Subject to the prior approval of the Engineer, this technique shall also be applied wherever it is considered necessary to stabilise the pole due to unsuitable soils, etc. Where the Contractor feels that this situation exists, he must advise the Engineer immediately and obtain a decision.

- l) Where poles are to be anchored into rock, the base of the pole shall have a reinforced concrete block cast around it. The dimensions of this block shall be approximately 1,25m x 1,25m x 0,5m and the bottom face shall be reinforced by R10 bars at 250mm centres in both horizontal axes. A Y20 bar shall be grouted into the rock for a distance of 300mm. The grouted end shall be straight while the end located in the concrete shall be provided with a hook around the reinforcing bars. Alternatively, 20mm "Rawplug" or similar duplex studs may be used in place of grouted bars.

12.12 Lighting Switches

12.12.1 General

Switches shall be of 15-20 A rating and shall comply with the requirements of SANS 60669-2-1. No switch shall be used to control more than 2000 W of incandescent, or 1500 W of discharge and fluorescent lighting.

All switch boxes shall be fitted with an earth stud.

12.12.2 Switch Types and Installation

a) Flush Switches

Flush switches with pressed steel or plastic overlapping coverplates shall be mounted into pressed steel rust-proofed boxes installed flush in the building fabric. The switch boxes shall be installed square and shall be flush with the wall finish. Boxes chased into walls shall be fixed square and mortared in position prior to plaster or other finish being applied.

b) Surface Switches

Surface switches shall be of the metal-clad type. Protected dollies shall be used for all industrial applications. The switch plate and box shall have a suitable rust resistant enamel finish.

c) Architrave Switches

- i) Architrave switches shall be used in partitioning mullions as required.
- ii) Unless otherwise specified, tapped holes for screws and outlet openings will be provided by others. The Contractor shall co-ordinate fully with the contractor providing the holes with regard to positions and switch screw templates. Fixing screws shall be provided by the Contractor.
- iii) Wiring to architrave switches may be run within the hollow mullion or other hollow metal structural members of the partitioning, but shall be run in conduit from the lighting outlet, terminating with a bush at the point when wiring enters the hollow mullion.
- iv) Where the wiring for lighting circuits is run in a ceiling channel which is situated directly over the hollow mullion or other wire carrying member,

then the wiring to switches may be taken directly into the latter without the use of conduit or lead-in tubes. Under no circumstances shall the wire pass over sharp edges and suitable provisions shall be made to shield the wiring accordingly.

d) Watertight Switches

- i) Watertight switches shall be used for all external applications and in potentially damp areas.
- ii) Watertight switches shall have cast alloy or UV stabilised high-impact plastic enclosures.
- iii) The minimum protection rating shall be IP55.

12.12.3 Mounting Heights

- a) Unless otherwise specified, switches shall generally be mounted at 1,4m above finished floor level to the underside of the switch.
- b) Where switches are located on walls near a change of wall finish, e.g. on tilted, face brick, or wood panelled dadoes, they shall be positioned so that the coverplates fall completely within one or other of the surfaces, but not on the junction line of the different finishes. The Contractor shall liaise with the relevant other trades to ensure that switches on surfaces present a neat appearance.
- c) Switches in locations meant for persons in wheelchairs (paraplegic toilets etc.) shall be mounted at 1,1m above finished floor level to underside.

12.12.4 Dimmers

a) Standard Dimmers

- i) Dimmer units suitable for controlling 220/230 V incandescent and fluorescent luminaires shall be of the integral controller/dimmer unit type suitable for mounting in a standard switchbox, or else in a suitable box supplied with the unit. The units shall be rated at 250 V and sized according to the load.
- ii) Dimmer units used in conjunction with 12 V dichroic luminaire transformers shall be of the induction type.
- iii) All dimmers shall be provided with a mains on-off switch and a dimmer control knob. Multi-lever switches may be utilized where there is a combination of dimmed and non-dimmed circuits fed from the same position.
- iii) The correct pre-heat transformers and lamps shall be used for all dimmable fluorescent luminaires, in accordance with the supplier's details. Alternatively units suitable for use with electronic fluorescent ballasts shall be used where electronic ballasts are employed.
- iv) Dimmers shall be noise-free and fully suppressed for radio and fluorescent ballast interference.

b) Remote Dimmers

Dimmers for loads larger than 1200 W are to be of the two-part type, i.e. with a local controller and a remote dimmer.

12.12.5 Photo-electric Controls

Where specified photocells shall be used to switch external lighting installations. Photo-electric switches shall be of the type comprising a photo-sensitive resistor, thermal actuator with an inherent operating delay to make it insensitive to short duration changes in light levels and a change-over switch mechanism, all housed within a tough, translucent, weather proof ultra violet stabilised cover. The operating level shall be factory preset to switch on at approximately 50 lux and off an approximately 100 lux. The response time after sudden changes in light level shall be not less than 15 seconds.

Integral protection against voltage surges shall be provided.

Photocells shall be positioned in such a way that they will not be affected by spill-light from the external lighting installation or by vehicle headlamps.

12.12.6 Occupancy Sensors

a) General Description

Single load 360° Dual Technology using PIR and Ultrasonic (US) sensing technology with a maximum load of 2000W and rated at AC voltage of 230V, +-10% at 50Hz within an optional Infrared (IR) Remote Controller interface.

b) Detection Range

- i) PIR : 8m (Diameter) at 2.5m height
- ii) US : Adjustable up to 10m x 16m (Oval Shape)

c) Type of Installation

- i) Ceiling (Flush/Surface)

d) Infrared (IR) Remote Controller for Dual Technology Occupancy Sensor

- i) Rated Voltage: 3V DC

12.12.7

Labeling

All switches in industrial applications, and elsewhere as specified shall be provided with a Traffolyte label screwed to the wall, or other fixed member, immediately adjacent to the switch. The label designation shall indicate the distribution board and circuit and outlet number, e.g.: "DB-AB/L4.3".

12.13 Bell Pushes

Bell pushes shall be 250 V rating, even where used for low voltage bell installations. In all other respects the requirements for lighting switches given in 12.12 shall apply to bell pushes. Bell pushes shall be mounted in separate boxes to switches or other components.

12.14 Socket Outlets and Plug Tops

12.14.1

16 A Switched Socket Outlets (SSOs)

- a) 16 Amp SSOs shall be 250 V rating; shuttered 2 pin and earth type complying with the requirements of SANS 164-1 and SANS 164-2.
- b) Outlets on circuits rated up to 20 A shall be of the normally switched type whilst outlets on 25-32 A circuits shall be provided with a class F0 SP MCB, or where

especially detailed, a DP MCB. The ratings shall be 16A unless otherwise specified.

- c) Single flush wall mounted SSOs shall be housed in 100 x 100 x 50mm accessory boxes. Double flush wall mounted SSOs shall be housed in 100 x 150 x 50mm accessory boxes. Surface single-outlet sockets shall be housed in 83 x 119 x 50mm galvanised steel boxes. SSOs for mounting in power skirting, bench-top trunking, hospital bed-head channels etc. shall be mounted on cradles suitable for such applications. Unless otherwise required, flush wall mounting outlets shall have pressed steel coverplates finished white or ivory. Surface outlets shall be of the industrial protected-dolly type with grey pressed steel coverplates.
- d) Where SSOs complying with SANS 164-1 are to be used in exposed areas, they shall be housed in a York S15 weatherproof enclosure or equal and approved.

12.14.2 Non-Standard Socket Outlets

a) Data/Electronic Equipment Outlets

- i) Dedicated 16 Amp SSOs shall be similar in construction to normal SSOs but shall have flattened earth pins in the 10 o'clock or 12 o'clock position as specified. The earth socket shall be isolated from the chassis of the unit to allow for the connection of 'clean' earths.

Unless otherwise specified, the socket outlet plate shall be of a distinctive colouring (usually red, or as specified in the Detailed Specification). Alternatively the socket pin shrouds and switch dolly shall be of the selected colour; the latter instances usually being applied to outlets in power skirting or hospital bed-head channel etc.

- ii) Where specially called for, dedicated SSOs are to be of the British Standard square pin, 13 Amp type. Similarly to 12.4.2 (a) (i), the earth socket shall be isolated from the chassis of the unit.

Wall mounting 13 Amp SSOs shall be suitable for mounting in a standard 100 x 100 x 50mm accessory box. Surface and power skirting mounted units shall generally be as detailed for 16A SSOs (12.14.1(c)).

- iii) 16 A dedicated plug tops, colour-matched to the respective plate or shrouds, and 13 A plug tops in ivory or white plastic, complete with 5 A cartridge fuses, at the rate of 60 % of all relevant outlets shall be provided and handed to the Client at Works handover.

b) Luminaire Outlets

Where required luminaires shall be fed via a locally mounted 5A SP, N + E non-switched socket-outlet. In these instances, the luminaires shall be fitted with 3m of 3-core flex and a rubber-clad 5A plug-top.

12.14.3 220/240 V Plug-Tops

- a) When required to be supplied by the Contractor, 13 A plug-tops shall be white or ivory plastic. 16 A plug tops shall be white or ivory plastic for general office areas and rubber clad type for workshops, production areas, etc. or colour coded plastic for dedicated types

- b) When wired, a small loop shall be made in the earth core of the flex within the plug top so that in the event of undue stress upon the equipment flex, the earth connection will tend to remain intact even if the feed wires are pulled loose.

12.14.4 3-Phase Socket Outlets

a) Existing Installations

420 V 3-Phase socket outlets for use in existing factories etc. shall generally match the units already installed, unless otherwise specified.

b) New Installations

- i) Generally multi-phase sockets shall be BICC Marachel type DS 16/30A or 32/50A TP + N + E wall mounting decontactors, or equal and approved, or as otherwise specified.
- ii) Each decontactor or similar shall be supplied with a plug unit which shall be handed to the Client upon Works completion and handover. 16 A units shall be fed with cable not exceeding 6mm² and 32 A units with cable not exceeding 10mm².

12.14.5 Mounting Heights

Unless otherwise required SSOs shall be mounted at the following heights from finished floor/surface level to the bottom of the outlet.

Flush outlets, generally	:	0,45 m
Garages, factories and workshops	:	1,4m (SP & TP units)
Kitchens and tea rooms	:	1,0m
Above work surfaces (Kitchens and Offices)	:	0,2m (SP only)

12.14.6 Labelling

Socket outlet labelling shall be as for switches, refer 12.12.5.

12.15 Miscellaneous Power Connections

12.15.1 Geysers

- a) Domestic-type geysers will be supplied, installed and connected to water services by others. The Contractor shall undertake all electrical connections.
- b) For wall mounted geysers, flush supply conduit shall terminate in a flush round box conveniently close to the electrical entry to the water heater. A surface type metal clad or polycarbonate encased 30 A DP switch disconnector shall be superimposed over the conduit box and the final connection shall be made using surface galvanised conduit, painted after installation.
- c) Where geysers are installed in concealed positions such as roof voids, the final connection from the local switch disconnector may comprise PVC covered flexible steel conduit.
- d) Unless otherwise indicated in the single line diagrams, wiring for geyser circuits not exceeding 4 kW single-phase shall be carried out with conductors and earthwire at least 2,5mm² each.
- e) Connections to calorifiers and large type geysers shall be as specified.

12.15.2 Kitchen Equipment

a) Domestic Stoves

Domestic stoves will be supplied and placed in position by others.

The Contractor shall provide a suitable electrical supply and final connection. A feed shall be taken to a flush mounted 60 A DP switch-disconnector positioned 300mm to one side of the stove and at a height determined by work surface, kitchen cupboards etc. From the switch-disconnector, flush conduit shall be taken to a point 450mm above floor level, and centred to the rear of the stove, terminating in a round conduit box. The final connection shall be carried out using a superimposing spout-entry conduit box and PVC covered flexible conduit for permanently connected units and via a 'stove connector' socket for plug-in units.

b) General Kitchen Equipment

- i) Canteen kitchen equipment such as stoves, fryers etc. shall be connected up by the Contractor.
- ii) Unless otherwise specified, equipment shall be fed via a local polycarbonate encased switch-disconnector mounted at 1400mm on the wall behind the appliance. The switch-disconnector shall be single-phase DP, or 3-phase 4-pole as required. The final connection shall be taken from the switch-disconnector using flush conduit offset out of the wall at 450mm above floor level. Water-tight PVC covered flexible steel conduit shall connect directly to the end of the wall conduit and shall then connect to the particular item of equipment.
- iii) Where no wall exists, a stainless steel pedestal and switch-disconnector arrangement shall be supplied, as detailed in the Work drawings.

12.15.3 Air Conditioning Units

- a) Console, ceiling and wall-mounting air conditioners (ACs) will be supplied and installed by specialist contractors.
- b) The Contractor will undertake electrical and control connections to the extent outlined in the drawings.
- c) Unless otherwise specified, AC units shall be fed via a locally mounted 30 A DP switch-disconnector unit and the final connection shall comprise the 3-core flex supplied with the AC unit taken via a cord-outlet arrangement mounted on the switch-disconnector faceplate.

12.15.4 Fans

a) General

Where fans are required to be supplied by the Contractor, they shall be supplied complete with all necessary accessories as applicable, such as mounting brackets, diaphragm plates, wire guards where fan blades are liable to be touched by hand, weatherproof louvres where fans are mounted on an outside wall, etc.

Fans and all accessories supplied therewith, shall be bolted, screwed or secured to walls and other surfaces as required.

Holes in walls or windows will be provided by the building contractor to details to be supplied by the Contractor.

b) Connection to Lift Motor Room Fans

- i) Where a lift motor room fan connection is required, the Contractor shall, in addition to the fan, also provide and install a "close-on-rise" 20A rating thermostat, having room temperature range, which shall be mounted near the fan unless otherwise indicated.
- ii) The wiring to the fan shall be taken from a SP MCB on the distribution board through a clearly labelled local 15/20A switch disconnect and through the thermostat to the fan motor terminals.
- iv) Final connections to the fan shall be carried out in flexible conduit.

c) Connection to Small Extract Fans

Where a small extract fan, such as is used in domestic kitchens toilets, etc., is specified, and when no facilities exist on the fan for conduit entry, connections may be made to the fan terminals by means of 3-core plastic-covered or "cabtyre" flexible cord, taken from a cord-outlet 15/20A switch disconnect unit in close proximity to the fan.

12.15.5 Plant and Motor Connections

a) General

Due to the many types of plant and/or motors that the Contractor may be called upon to connect up, specific details will be as described in the drawings or Detailed Specification.

b) Plant Supplies

- i) Generally the Contractor will be called upon to supply and install an incoming feeder cable to a motor control panel (MCC), or similar, supplied by others.
- ii) The Contractor shall liaise and co-operate with the plant vendor/contractor regarding program, correct location, testing – including phase rotation check, and switch-on.
- iii) Where the Contractor has any doubt regarding electrical and safety aspects of plant controls and equipment by others, he shall have the right to refuse to live up the system until the receipt of an indemnity from the Engineer.

c) Motor Connections

- i) Unless otherwise specified motors and associated machinery will be supplied and fixed by others. The Contractor will be required to provide an electrical supply and to connect the means of disconnection, starting and to the motor terminals and accessible to the machine operator where applicable.

- ii) Unless specified as being supplied by others, the Contractor shall supply and install a padlockable, local switch disconnecter for each motor. A suitable starter (which will be provided with the motor) shall be fixed and connected by the Contractor.
- iii) Switch-disconnectors shall, unless otherwise specified, be wall mounted adjacent to the motor, or onto a suitable floor mounting pedestal or onto the framework of the machine or equipment. The switch disconnecter shall be within 2,0m of the motor terminals.
- iv) Unit starters shall, where possible, be mounted adjacent to the switch disconnecter provided that this position will afford easy control of the machine by the operator.
- v) The final connection to a motor shall comprise a multi-core armoured cable with a neatly strapped loop of slack at least 800mm long to allow adjustments to be made to the motor and/or its mountings. The multi-core cable shall contain an extra core for earthing purposes. The entry into the motor terminal box should preferably be from below/or alternatively from the side, but never from above.
- vi) The Contractor shall ensure the correct rotation of the motor and the settings of the starter in co-operation with the representative of the supplier of the motor.

12.15.6 Labelling

All cables, cores, switch-disconnectors and other items of control equipment shall be labelled. Labels for controls shall be affixed to a non-removable member or wall, adjacent to the item.

Refer to items 12.9.3 and 12.12.5 for general requirements.

12.16 Provisions for Ancillary Services

12.16.1 General

Where provision only for telephones and other systems of communication, fire defence, security, aerial, computer data or other services are specified, the Contractor shall supply and install all necessary conduit, wiring channel, cable tray, boards, outlet boxes, sleeves etc., as detailed.

12.16.2 Junction Boards

Where called for, junction boards for telephone and data services shall be supplied as specified. The boards are to be similar in construction and finish to flush, surface or semi-flush distribution boards, as required (See clause 12.4). Boards shall generally be 100 – 115 mm deep with an internal 15 mm softwood backing. Doors shall be secured with square-key turnbuckles and provision for padlocking. Main distribution frames (MDFs) shall generally be similar to normal junction boards but are to be 150 mm deep.

12.16.3 Cable Sleeves

- a) Unless otherwise specified or indicated on the drawings, the Contractor shall supply and install all sleeves for telephone and other service cables of sizes and in positions as detailed.

- b) Where sleeves are specified to be supplied and installed by others, the Contractor shall be responsible for ensuring that such sleeves are installed in good time and in their correct positions. Suitable rustless draw wires are shall be provided in all sleeves.

12.16.4 Conduit

All conduit for telephones and other services shall be provided and installed to the same requirements as for the electrical installation, and shall be fitted with rustless draw wires. Colour coding for industrial project and other installations where specified shall be in accordance with 12.7.4 (e).

Each class of service shall be kept entirely segregated from any other service.

12.16.5 Outlets

- a) Unless otherwise specified all outlets for telephones and other services shall consist of standard 100 x 50mm flush type pressed steel boxes generally mounted a height of 0,3m from finished floor level to bottom of box.
- b) Where switch sockets or other outlets are mounted in the same room at nominally the same height above floor, care shall be taken to ensure that the undersides of all such outlets are accurately lined up.

12.16.6 Coverplates

The Contractor shall supply and fit metal or plastic coverplates of the same material and finish to match flush switches and switched socket coverplates. A blank cradle shall be fitted in the outlet box to which the coverplate shall be screwed, allowing for proper alignment of the coverplate. Nickel or chromium plated screws shall be used to secure all blank coverplates.

12.16.7 Co-operation

The Contractor shall co-operate with the suppliers and installers of other services in providing all information required, and shall assist such other installers in the event of difficulties which they may experience with drawing in of their cables into conduit or channel provided by the Contractor and where such difficulty arises because of want of knowledge of location, blockages broken draw-wires etc.

12.17 Fixings and Supports

12.17.1 General

- a) The Contractor shall be responsible for all fixings in connection with his installation, including: brackets, suspensions, clamps, bolts, screws etc, and all accessories and fixing devices to effect a substantial and proper means of fixing equipment, components, wireways, cables etc.
- b) All items shall be selected to fully suit the application, due cognisance being taken of:
- Weight of equipment and fixing media ('pullout strength')
 - Temperature and humidity
 - Effect of corrosive and damp environments
 - Weathering, UV degradation etc
 - Electrolytic effects

- c) The following details shall apply to all fixings irrespective of the various categories in which they are described.

12.17.2

Concrete and Brickwork

a) Wall Plugs

- i) Fixings into concrete and brick surfaces for equipment with a maximum mass of 10kg may be undertaken with plastic or fibre 'wall-plugs'. Under no circumstances shall wooden inserts be used.
- ii) A masonry drill of the correct size shall be used, in conjunction with a suitable hammer drill or similar, to make holes into the brick or concrete fabric; fixings into mortar joints will not be allowed. The fixing plug length must match the threaded portion of the fixing screw; undersized plugs will not be allowed.
- iii) Round or cheese headed screws of the correct diameter to match the respective plug shall be used throughout.

b) Anchor Bolts

- i) Fixings into concrete and brick surfaces for equipment with a mass exceeding 10kg, or where the fixing holes are 10mm or larger, shall be undertaken using expanding anchor bolts, or by means of bolts cast into concrete.
- ii) For expanding anchor fixings, holes shall be made similarly to wall-plug holes (see 12.17.2 a) ii)).

c) Channel Fixings

- i) Where brackets, cable-rack support arms etc are to be fixed, the Contractor shall supply and install Cabstrut, or equal and approved, galvanised channel supports and associated clamps, cantilever arms and so forth. Surface channels for the support of various brackets, pendant studding etc shall be fixed into concrete ceilings or brick/concrete walls using anchor bolts.
- ii) In instances where cast-in support channels are to be used, the Contractor shall liaise with the building/civil contractor to ensure that inserts are installed timeously on to shuttering and that all openings are protected from the ingress of vibrated concrete.
- iii) Unless otherwise detailed in the Detailed Specification and/or drawings, the Contractor shall submit particulars, including sketch drawings, of proposed fixings to the Engineer for approval prior to installation. Such proposals shall be accompanied by design calculations of loadings and fixing spacings.

d) Cartridge Fixings

Shot or cartridge fixings, using fixing guns, percussion charges and fixing pins in accordance with the relevant manufacturer's recommended methods, shall only be used with the express written permission of the Engineer. Where used, the Contractor shall comply fully with the requirements of the Occupational Health and Safety Regulations and shall ensure that warning signs are placed at all entrances where such work is in progress.

12.17.3 Hollow Partitions, Hollow Blocks and Ceiling Boards

- a) Fixings shall not be made using gypsum, fibre or similar ceiling boards or ceiling tiles as the supporting medium.
- b) For ceiling boards, the component shall be installed to a substantially fixed conduit box. In the case of linear fluorescent luminaires or other large components, further fixings shall be made into the support branderling. Where there is no branderling conveniently located, the Contractor shall supply and install independently fixed wooden inserts.
- c) Surface fixed items mounted to ceiling tiles within support tees shall be fixed similarly to the foregoing except that, with written permission of the Engineer, supplementary fixings may be made into the ceiling tee lips using approved self-tapping screws.
- d) Fixings into hollow partitioning material, or hollow building blocks, shall be done by means of spring-loaded 'toggle' fixings, or, where suitable, compression type cavity fixing devices may be used.

12.17.4 Fixings on Steelwork

- a) Support brackets, hangers etc shall be fabricated from galvanised angle iron or channel iron, or shall be made up using Cabstrut or equal channel and associated accessories to suit the application.
- b) Brackets etc shall be fixed to the structural steelwork using purpose made galvanised beam clamps, Caddy clips or similar. Welding to structural steelwork may only be carried out with the written permission of the Engineer.

12.17.5 Painting

- a) All exposed steel shall be cold galvanised.
- b) Where specified, supports etc shall be primed and painted using an epoxy finish, colour: light orange, SANS 1091, ref. B26. Refer to clause 12.4.1 (h) for details of painting.

12.17.6 Adhesives

- a) Under no circumstance will any adhesive material be used for any fixing with the single exception of the fixing of door gaskets.
- b) The adhesive for use with gaskets shall be applied as per manufacturer's specifications, or self adhesive gasketing material shall be used. The adhesive shall be of the silicone based type suitable for use under extreme weathering and temperature ranges between -40°C and +70°C.

12.18 Earthing and Lightning Protection

12.18.1 General

- a) In instances where soil resistivity surveys have been carried out to determine the design of the earth electrode system/s, Tenderers shall submit their price in accordance with the Tender Documentation, including the bills of quantities where applicable.

- b) Where no resistivity survey has been conducted prior to calling for tenders, prices shall be based upon a provisional design and, where applicable, a provisional bill of quantities. The final design will be based upon a subsequent soil resistivity survey.
- c) All earthing and lightning protection surveys, installations and testing must be carried out by a recognised specialist. Unless the Tenderer is also the earthing specialist other Tenderers (e.g.: electrical contractors) must submit full details of their proposed specialist sub contractor.
- d) This section does not include switchyard earthing. Where necessary a supplementary specification: "Standard Specification for Substation Earthing" will be issued.

12.18.2 Earth Resistance Testing

- a) Soil resistivity tests shall be carried out at the proposed location of the electrode/s and following ground levelling by the civil/building contractor, where applicable.
- b) The Contractor must give at least 48 hours notice of impending tests to the Engineer to allow him to attend and witness them at his option.
- c) The tests must be carried out in accordance with SANS 10199 using a recognised method (e.g.: Wenner method) with a four terminal null balance 'megger' tester. A meter calibration certificate proving calibration within the last six months undertaken by a recognised testing authority must be submitted to the Engineer prior to carrying out earth readings. If there is any reason to suspect the accuracy of any instrument, the Engineer may call for confirmation testing at the Contractor's expense.
- d) The result of tests, including a specification for the electrode design, shall be submitted to the Engineer within seven days. The test results in tabulated and graphical form shall be accompanied by a copy of the meter test certificate.
- e) The following maximum resistances shall apply:
 - i) Transformers

Up to 500kVA	5 Ohms
500 - 800kVA	3 Ohms
800 - 1000kVA	2 Ohms
Above 1000kVA	1 Ohm
 - ii) Lightning Protection
 - SANS 10313, category A structures: 30 Ohms overall, subject to a maximum of 200 Ohms for any single electrode (or per SANS 10313, whichever is the lower reading).
 - SANS 10313, category B & C structures: 50 Ohms overall, subject to a maximum of 200 Ohms for any single electrode (or per SANS 10313, whichever is the lower reading).
 - iii) Plant Bonding – Hazardous Areas

Where specified to be bonded, the electrode reading for tanks, silos etc must not exceed 7 Ohms with the electrode disconnected from any other electrode system (See also item 12.18.6).

12.18.3 Earth Electrode

- a) The earth electrode shall consist of earth rods, bare copper wire, copper tape etc, or a combination of these, as specified in the drawings.
- b) Earth rods shall nominally be 1500mm long, 16mm diameter extensible type steel cored, copper jacketed where the copper cladding is at least 250 microns thick molecularly bonded to the steel rod, as 'Cadweld', or equal and approved.
- c) Mains earthing conductors ('trench earths') shall consist of 70mm² bare copper cable while conductors for lightning protection and static bonding shall be 50mm².
- d) Trench earth conductors, as well as the tops of earth rods shall be not less than 600mm below finished ground level.
- e) Earth rods shall be driven into the soil utilising a purpose made driving head in conjunction with a mechanical hammer. In hard ground and in rock, the rods shall be installed into pre-drilled holes made with an earth-drilling rig. Whilst loose soil or a soil slurry may be used to back-fill holes in hard soil, carbonaceous conductive aggregate, such as 'Marconite' or equal and approved, shall be used for holes bored in rock.
- f) Rods longer than the nominal 1500mm shall be coupled using an external sleeve arrangement and the liberal application of silicon or hydrocarbon grease. Rods must butt against one another inside the coupling; gaps will not be allowed.
- g) Rods, tapes and cable conductor in highly corrosive soils shall be of stainless steel, or as otherwise specified.
- h) Joints in copper cable electrodes shall only be effected using an exothermic welding process as 'Cadweld', or equal and approved.
- i) Lightning protection trench earths shall not be run directly in soil under pathways. In these instances the conductor shall be run in 75mm diameter uPVC sleeving which shall be laid under the path and at least 1000mm clear of its edges.

12.18.4

Mains Earthing

- a) The earth electrode resistance for mains earthing of transformers, switchgear etc. shall be in accordance with 12.18.2 (e) (i)
- b) A main earthing bar of high conductivity copper, at least 50mm x 6mm in section and 500mm long, (or as otherwise specified in the Detailed Specification and/or drawings) installed in the transformer room facing the LV side of the transformer/s shall be provided. This shall be mounted onto insulators at 500mm above finished floor level. The bar shall be pre-drilled with 12 No. M12 diameter holes for the connecting of earth leads.
- c) The earth electrode cable/s and all earth bonding leads shall be connected to the bar by means of brass or stainless steel bolts, nuts, washers and lock-washers. Earth cable terminations shall comprise hydraulically crimped tinned

lugs. The point of origin of each conductor must be clearly indicated by means of an embossed or punched metal tag attached to the conductor near its lug or connection point.

- d) The following points shall be bonded to the earth bar with 70mm² conductor, or as otherwise specified:
- i) Transformer star points (*)
 - ii) LV switchboard neutral bar (*)
 - iii) LV switchboard earth bar (*)
 - iv) MV switchgear

(*): Subject to the earth conductor being not less than half the cross sectional area of the of the relevant phase conductor between the transformer and the LV switchboard.

- e) Minisubs shall be earthed in a similar fashion to main substations except that the earthing bar in the LV compartment shall take the place of the separate main earth bar.

12.18.5

Lightning Protection

- a) Besides earth resistance testing, the Contractor shall arrange for the design of the lightning protection system, including air terminals, roof bonding, down conductors etc to be carried out by a reputable specialist. The Engineer will provide suitable drawings to the Contractor for this purpose either as transparencies or as DXF Computer Assisted Draughting (CAD) files.
- b) Following submission of the design to the Engineer for comment (modification where necessary) and approval, the Contractor shall submit the final design to the SANS for approval. Transparencies of the SANS approved drawing/s shall be submitted by the Contractor to the Engineer for record purposes prior to, or simultaneously with, the start of the installation.
- c) Air terminals may be of various designs. As a general guide, the following basic requirements shall be complied with:
- i) All conductor material shall be electrical grade aluminium alloy in accordance with the requirements of BSS 1476/H/E9 or American Standards Specification 6063. Conductors shall be installed in such a way that no part of the system shall come into contact with concrete or plaster.
 - ii) Circular conductors shall have a minimum cross sectional area of 50mm². Flat conductors shall be 20mm x 3mm minimum.
 - iii) Joints in circular conductors shall be done using a hydraulic crimping machine. Flat conductors shall be joined with either two bolts, or else two aluminium rivets of 6mm diameter.
 - iv) Bonding to extraneous metallic surfaces shall be done by bolting or riveting.
 - v) Conductors must be mounted into aluminium alloy guides which in turn are seated on a suitable barrier material (plastic or similar) and which allow free longitudinal movement of the conductor.
 - vi) Straight horizontal runs of conductor shall be provided with expansion loops every 30m or less.

- vii) Electrically continuous metal roofs shall be used as the air termination. Where flat metallic roofs may be surrounded by non metallic parapet walls, conductors are to be installed on top of the wall and bonded to the metal roof sheeting at intervals not exceeding 20 metres.
 - viii) Non metallic roofing supported by steel trusses and purlins which are electrically continuous may be treated as for a complete metal construction.
 - ix) Where required 12mm diameter x 500mm long finials shall be installed at the outer corners of buildings of 15m to 30m in height and in addition at intervals of no more than 30m along exposed parapet walls. The finials, in turn must be bonded to the peripheral conductors.
 - x) Tall structures, as defined in SANS 10313, shall, where required, have 12mm diameter x 1000mm long finials. These shall be installed at an angle of 30° out from the structure and bonded to the peripheral air terminal system, all as required by the Code of Practice.
- d) Down conductors shall consist of aluminium alloy run surface down the outside of buildings, or, where suitable, shall comprise structural steel columns, or reinforcement steel in reinforced concrete columns all as described in the Detailed Specification and/or installation drawings and in accordance with the Contractor's SANS approved design.
- i) Down conductor spacing shall not exceed $30 - 0,4h$ metres, where h = the maximum height of the structure. However the minimum separating distance need not be less than 10 metres except for tall slim structures (like chimney stacks) where a minimum of two down conductors must be installed.
 - ii) Large expanses of external metal wall cladding as well as external metal staircases, ductwork etc shall be bonded to ensure vertical electrical continuity and to the lightning protection system at their upper and lower extremities.
 - iii) Aluminium based down conductors shall terminate at 500mm above ground level where they shall be bonded to the earth electrode system. Under no circumstances shall aluminium conductor come into contact with the ground.
 - iv) The Contractor must liaise closely with the building contractor to ensure the timeous placement of cast-in threaded bonding sockets at the tops and bottoms of reinforced concrete columns.
- e) Test points shall be provided where specified. These shall be either mounted near the base of the down conductor in the lower part of the wall or else contained in a small cast iron inspection chamber installed in the ground, all as detailed in the installation drawing/s and/or Detailed Specification.

12.18.6

Static Bonding

Static bonding of operating theatres, explosives magazines, petrochem installations, electronic workshops and the like fall outside the scope of this general specification and, where required, will be specified in supplementary specifications or the Detailed Specification.

12.18.7

Testing and Maintenance Manuals

Upon completion of the earthing installation, testing in accordance with the relevant SANS specification/s shall be carried out by the Contractor and the results submitted to the Engineer. The Contractor shall also supply maintenance manuals, including as-fitted and SANS approved record drawings, test certificates etc, all as outlined in clause 10.0.

PART 2: SCHEDULE OF LUMINAIRES

ITEM	DESCRIPTION	INSTALLATION AREA	MANUFACTURER	MODEL
Type B	BALKHASH: LD 2ft 45W, LED Modules & Drivers: TRIDONIC, OSRAM, Vossloh-Schwabe	Classrooms		SDQ-DFLU-S45-J2
Type N	BHR Outdoor bulkhead round fitting 10W, 12W, Matt white / black, LED Type: Osram Duris E5, LED system Efficacy: 50-60 Lumens/Watt, 5 Years Warranty:	Indoor & Outdoor (Ablutions, Area Lighting)		BHR10W
Note	All luminaires shall have a 12 month warrantee & the contractor takes responsibility for latent defects, which is common law protection.			

PART 3: SCHEDULE OF INFORMATION

PART 3: SCHEDULE OF INFORMATION

1. SCHEDULE OF PERSONNEL TO BE ASSIGNED TO THIS PROJECT

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

DESIGNATION	NAME AND NATIONALITY OF: (i) NOMINEE (ii) ALTERNATE	SUMMARY OF QUALIFICATIONS, EXPERIENCE AND PRESENT OCCUPATION
<u>HEAD OFFICE</u> Partner/director		
Project manager		
Other key staff (give designation)		
<u>SITE OFFICE</u> Site Agent		
Site Engineer		
Construction supervisor (Give designation)		
Other key staff (give designation)		

.....
NAME OF TENDERER.....
TENDERER'S SIGNATURE.....
DATE

2. SCHEDULE OF WORK CARRIED OUT BY TENDERER

The Tenderer shall list below the last five Electrical engineering contracts of a similar nature awarded to him. This information is material to the award of the Contract.

EMPLOYER (Name, Tel No and Fax No)	CONSULTING ENGINEER (Name, Tel No and Fax No)	NATURE OF WORK	VALUE OF WORK	YEAR OF COMPLETION

.....
NAME OF TENDERER

.....
TENDERER'S SIGNATURE

.....
DATE

3. SCHEDULE OF PROPOSED SUBCONTRACTORS

I/We hereby notify you that it is my/our intention to employ the following Sub-Contractors for work in this contract.

[illegible]

NAME OF TENDERER

.....
TENDERER'S SIGNATURE

DATE

4. REGISTRATION AS AN ELECTRICAL CONTRACTOR

The Tenderer must be registered as an Electrical Contractor with the Electrical Contracting Board of South Africa and must also be registered with the Workmen's Compensation Commissioner and the Unemployment Insurance Commissioner to qualify for this tender.

Tenderers must complete the following questionnaire and submit it with this tender.

- a) Has the company been registered with the Electrical?
Contracting Board of South Africa YES/NO
- Registration No :
- Date of issue :
- b) Has the company been registered with
the Department of Manpower?
- i) The Workmen's Compensation Commissioner YES/NO
- Registration No :
- Date of issue :
- ii) The Unemployment Insurance Commissioner YES/NO
- Registration No :
- Date of issue :
- c) Has the company been registered with,
and graded by the CIDB? YES/NO
- Registration No :
- Grading :

I/We certify that the above information is correct

Signature :

Name of Signatory :

Name of Firm Represented :

Address :

.....

.....

Date :

NOTE: **IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT ELECTRICAL INSTALLATIONS REGULATIONS FAILURE TO COMPLY WITH THIS CLAUSE OF THE SPECIFICATION MAY RESULT IN DISQUALIFICATION AND REJECTION OF THE TENDER.**

5. DETAILS OF INSTALLATION ELECTRICIAN

I/We certify that is a registered installation electrician in terms of the Occupational Health and Safety Act (Act 85 1994) and is permanently employed by my/our company trading as:

.....

I/We further certify that the abovementioned person will be appointed as the responsible person in charge of the installation, which person shall personally supervise the whole of the electrical works as tendered for from inception to completion inclusive of signing all commencement/completion/ cost certificates necessary as part of the Works.

I/We further certify that I/We am/are fully aware of the provisions of the Occupational Health and Safety Act (Act 85 1994), and that my/our company is trading as a registered electrical contracting organisation.

**SIGNATURE OF
TENDERER**

**SIGNATURE OF
INSTALLATION
ELECTRICIAN**

**REGISTRATION
NUMBER OF
INSTALLATION
ELECTRICIAN**

DATE

**COMPANY
STAMP**

NOTE

It is an offence to employ a registered single-phase installation electrician on a poly-phase installation and it may be necessary to submit a certified copy of the licence of the person to be employed on any poly-phase project.

6. DETAILS OF THE PROPOSED LIGHTNING PROTECTION SYSTEM (LPS) SUBCONTRACTOR

NAME OF THE LPS SUBCONTRACTOR :

ADDRESS :

PROOF OF EXPERIENCE ATTACHED? : **YES:** **NO :**

NAME OF TENDERER :

TENDERER'S SIGNATURE :

DATE :

7. SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Electrical Sub-Contractor will be required to supply material in accordance with the contract at no additional cost.

NB: Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of origin
1.	Distribution boards		
2.	Circuit breakers 1P, 2P, 3P		
3.	Contactors 1P, 2P, 3P		
4.	Earth leakage relays		
5.	Daylight sensitive switch		
6.	Surface all weather isolators		
7.	Water tight rotary switch with and without night light switch contact.		
8.	16A power skirting mounted socket outlets		
9.	16A flush switched socket outlets		
10.	16A surface switched socket outlets		
11.	5A unswitched socket outlets		
12.	PVC SWA PVC cable		

NOTE: Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.

.....
NAME OF TENDERER
 (or Company stamp)

.....
TENDERER'S SIGNATURE

.....
DATE

PART 6: PREAMBLES TO BILLS OF QUANTITIES

PART 6: ELECTRICAL PREAMBLES TO BILL OF QUANTITIES

1. BILLS OF QUANTITIES

These Bills of Quantities contain pages numbered in the consecutive order.

The Tenderer is required to check the numbers of pages and should any page be found to be missing, or in duplicate, or if any reproduction is indistinct, or if any ambiguity arises as to the meaning of any item or description, or if these Bills of Quantities contain any obvious errors, then the Tenderer must immediately inform the Engineer and have the same rectified or explained, as the case may be. No claim will afterwards be considered where the Tenderer has failed to comply with these instructions.

No alteration, erasure, amendment or note is to be made in the text of these Bills of Quantities and should any such alteration, erasure, amendment or note be made by the Tenderer it will be recognised, but these Bills of Quantities as prepared by the Engineer will be adhered to.

2. CONTRACT DOCUMENTS

The Bill of Quantities form part of and must be read in conjunction with the Specification which document contains the full descriptions of the work to be done and material and equipment to be used and unless otherwise described in the Bill of Quantities, reference should be made to the Specification for the full meaning of descriptions of work to be done and materials and equipment to be used in this service.

3. ARITHMETICAL ERRORS

The tender price arithmetically corrected where necessary and not the amount stated on the form of tender shall constitute the contract price of the successful Tenderer.

No error in the calculation of schedule rates which may be discovered subsequent to the submission of a tender will constitute grounds for a claim of any description. A tender that is incomplete or insufficient in any respect may result in the disqualification of such tender.

4. ALTERATIONS

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

5. ADJUSTMENTS

The Priced Bills of Quantities of the successful Tenderer will be checked and the Engineer reserves the right to call for adjustments to any individual price and to rectify any discrepancy whilst the total arithmetically correct tender price, as submitted, remains unaltered.

6. RESPONSIBILITY OF TENDERER

The responsibility for the accuracy of the quantities written into the Bill remains with the person who prepared the Bill. The Tenderer shall be relieved of responsibility of measuring quantities at the tender stage, and the tender sum submitted shall be in respect of the quantities set out in the Bills, although he will be required to make his assessment of items such as brackets, fixing, etc., from details stated in the Bills and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the Specification.

7. **QUANTIFICATION OF ITEMS**

The successful Tenderer and the Employer or his Agent may agree that the total of any Bill or Bills, including any variations by way of additions thereto or deductions there from, represents a fair and accurate quantification of the items set out in the Bills and the parties may agree final payment on that basis. In the event of any dispute as to the quantities, then the disputed item or items shall be adjusted where necessary.

8. **ORDERING OF MATERIALS**

These Bills of Quantities are not to be used for ordering purposes. Any orders placed by the Contractor on the basis of these Bills of Quantities shall be at his own risk.

9. **VARIATIONS**

Variations in the scope and extent of the work included in the Bills shall be allowed to meet the Employer's requirements and shall be measured and costed at rates entered in the Bills, where appropriate, and shall form an addition to or deduction from the total Bills. Any items or variation for which rates have not been included in the Bills shall be agreed and priced as non-scheduled items in accordance with the provisions of the contract.

The rules governing the extent and costing of the variation shall be those provided for in the form of Conditions of Contract.

Variations to the planning before the work has been executed shall be priced as above.

Alterations to work already executed cannot necessarily be priced as above and must be reviewed on its merits.

Unless a separate rate for the supply and for the installation of any item is specifically called for, the supply and installation costs of any item shall be fully included in the unit price.

10. **DESCRIPTION OF ITEMS**

The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates, plant, temporary works, return of packing, establishment charges, profit and all other obligations arising out of the conditions of contract.

11. **WASTE ALLOWANCE**

All measurements are net, unless otherwise stated, and Tenderers must allow in the rate for wastage.

12. **PROVISIONAL SUMS**

All provisional sums shall be expended as directed by the Engineer and any balance remaining shall be deducted from the amount of the contract sum.

All items described as "Provisional" shall be measured as executed and paid for according to prices in the Bills of Quantities and any unexpended amounts shall be deducted from the amount of the contract sum. No work for which "Provisional" items are provided shall be commenced without written instructions from the Engineer.

13. **CABLE QUANTITIES**

The quantities given in the Bill for cable, cable markers, and earth wire laid with cable and excavations cannot be regarded as exact and are subject to measurement on site after completion of the service and adjustments will be made according to the unit rates given in the Bill.

Note: Checking of Cable Lengths

Notwithstanding the fact that the lengths of cables as given in the Bills of Quantities have been measured from scaled drawings, the contractor shall check such lengths on site before ordering the cable, as he will not be paid for excess cable after the completion of the service. Any allowance for off-cuts shall be made in the unit rates. The final measurements shall be based on the net route length of the cables concerned.

14. **CLASSIFICATION OF MATERIALS ENCOUNTERED IN THE EXCAVATIONS**

Materials encountered in the excavations for cable trenches, lighting standard and bollard holes generally shall, unless special provision to the contrary is made hereinafter, be classified as follows:-

- a) 'Hard rock' shall mean any excavation requiring the use of explosives.
- b) 'Soft rock' shall mean any excavation which necessitates the use of pneumatic tools.
- c) 'Ordinary material' shall mean all pickable material.

In the event of any dispute regarding the classification of material, the Engineer's decision in this connection shall be final.

Should the Subcontractor consider that any material encountered in the excavations is 'hard rock' or 'hard material', he shall immediately notify the Engineer in writing. Failing such notification the excavation shall be assumed to be in 'ordinary material' and shall be measured and valued accordingly. Wherever practicable all excavation in ground other than 'hard rock' and/or 'soft rock' shall be carried out first after which levels will be taken of the exposed 'hard rock' and/or 'soft rock' and agreed upon by the Engineer and the Contractor.

Where the Contractor encounters a combination of 'hard rock' and/or 'soft rock' simultaneously in a section of trench and employs explosives or pneumatic tools to remove all the various types of materials in that section of trench, the use of these methods of removal will in no way influence the Engineer's classification of the materials.

15. **VALUE ADDED TAX OR OTHER LEGAL DUTIES PAYABLE**

All items priced in this Bill of Quantities shall exclude any tax applicable to the particular service article equipment or accessory and these net priced items will be used for normal variations on the contract.

The tax value will be added at the ruling % rate to all payments and valuations i.e. net price + VAT.

16. **ITEMS THAT ARE NOT RE-MEASURABLE**

Unless there has been a written variation either in the form of a site instruction or an issue of a revised drawing, conduits and conductors are not re-measurable.

PART 5: UNSCHEDULED RATES

PART 5: UNSCHEDULED RATES

Material	%
Materials shall be charged at net cost, plus a percentage for profit, procuring, taking delivery and safe keeping. These costs shall be substantiated with invoices.	
(i) Percentage mark-up on proven net cost (for unit cost of less than R1 000,00)	
(ii) Percentage mark-up on proven net cost (for unit cost of less above R1000,00)	
(ii) Handling charge for the correctly supplier materials but that have to be replaced with a different material and the material that is being replaced is to be returned to the supplier as instructed by the Engineer in writing.	

PART 6: BILLS OF QUANTITIES

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
1,0	BILL NO. 1 : PRELIMINARY & GENERAL				
1.1	Compliance with General Conditions of Contract : Insurances, Assurances, Sureties, Allowances, etc				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract"				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.3	Contract Management and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
TOTAL BILL NO.1 TO PRICE SUMMARY					-

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
2.0	BILL NO. 2: DISTRIBUTION BOARDS					
2.1	New Surface/Recess mounted distribution boards accordance with the Specifications and Schedule of Distribution Boards. <i>NOTE : All equipment to be SABS approved and bear the SABS prformance mark</i>					
2.1.1	DB EX, Fault Level: 6kA	No.	1			
2.1.2	DB - GR, Fault Level: 6kA	No.	1			
2.1.3	DB - AB, Fault Level: 6kA	No.	1			
TOTAL BILL NO. 2 TO PRICE SUMMARY						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
3.0	<u>BILL NO. 3: MAINS CABLING & WIRING</u>					
3.1	<u>Cables</u> (SANS 150) PVC SWAPVC cables drawn into cable sleeves, installed on cable trays/ladders or laid in open trenches including cutting and off cuts					
3.1.1	16mm ² x 3 core	m	140			
3.1.2	10mm ² x 3 core	m	40			
3.1.3	4mm ² x 3 core	m	50			
3.2	<u>Terminations for</u>					
3.2.1	16mm ² x 3 core	No.	2			
3.2.2	10mm ² x 3 core	No.	2			
3.2.3	4mm ² x 3 core	No.	2			
3.3	<u>Bare Copper Earth Wire</u> Wired tied to cables installed in the above scheduled cables including terminations					
3.3.1	6mm ²	m	140			
3.3.2	4mm ²	m	40			
3.3.3	2,5mm ²	m	50			
3.4	<u>Cable sleeves</u> Heavy duty or flexible (Kabelflex) PVC cable sleeve laid in open trench including cutting and joining <i>NOTE: Spare sleeves for future use to be sealed at both ends</i>					
3.4.1	110mm	m	100			
3.4.2	110mm slow bends	No.	4			
3.4.3	50mm	m	60			
3.4.4	50mm slow bends	No.	8			
3.4.5	32mm	m	60			
3.4.6	32mm slow bends	No.	3			
3.5	<u>Trenching for Cables</u> Trenching of cable trenches 600mm deep x 400mm wide including backfill and compacting.					
3.5.1	Earth or pickable ground	m	300			
3.5.2	Soft rock requiring use of pneumatic tools	m ³	10			
3.5.3	Hard rock requiring use of dynamite	m ³	10			
3.5.4	Allow for the importing of suitable soil to be used as either bedding layer and/or backfilling layer (bedding to be in layer of 75mm and backfilling in layers of 150mm) Filling obtained from excavations and/or prescribed stock piles on site compacted to 95% Mod AASHTO density	m ³	100			
3.5.5	Allow for the backfilling of the trenches, using imported soil and/or selected (excavated) material	m ³	40			
3.6	<u>Cables Labelling</u> Label cables on both ends with numbering beads or non-corroding straps to indicate their connection points.	Item	1			
Carried Forward to Next Page						
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BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
3.7	Cable Warning Tape Skull and Crossbones Danger Tape	m	230			
3.8	Cable Markers Concrete cable markers complete with galvanised wire fastened to cable and aluminium marker plate. with description	No.	3			
3.9	Low Voltage Earthing Allow for bonding of the electrical installation	Item	1			
3.10	Earth Spikes Supply, delivery to site, installation of earth spikes including all fastening materials, lugs, etc.					
3.10.1	1800mm x 16mm diameter	No.	3			
3.11	Manholes Double skin brick 700mm deep manhole with heavy duty cover with the following minimum inside dimensions:					
3.11.1	inside dimensions: 900mmL x 900mmW	No.	1			
TOTAL BILL NO. 3 TO PRICE SUMMARY						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
4.0	<u>BILL NO.4: GENERAL LIGHTING</u>					
4.1	<u>Conduit</u> 20mm PVC (SANS 950) conduit chased into brickwork, cast into concrete or fixed onto trusses including cutting, bending, saddles, bushes, etc.	m	600			
4.2	<u>Conduit Boxes</u>					
4.2.1	PVC round box for 20mm conduit, back or side	No.	29			
4.2.2	Galvanised steel, 100 x 50 x 50mm box for 20mm conduit built into brickwork or cast in concrete. (cover plates measured elsewhere)	No.	6			
4.3	<u>Equipment and Control Gear</u> 16 Amp single lever, one way flush mounted					
4.3.1	1-Lever, 1-way	No.	5			
4.3.2	2-Lever, 1-way	No.	1			
4.3.3	1-Lever, 1-way (Water tight)	No.	1			
4.3.4	Photo-cell	No.	2			
4.3.5	5A switchless socket outlets for light fittings	No.	1			Rate only
4.3.6	Occupancy Motion Sensors	No.	5			
4.4	<u>Conductors</u> PVC insulated single core copper conductors drawn into conduit or laid into wiring channels.					
4.4.1	1,5mm ² PVC black and red	m	1			Rate only
4.4.2	2,5mm ² yellow /green	m	400			
4.4.3	2,5mm ² PVC black and red	m	800			
TOTAL BILL NO. 4 TO PRICE SUMMARY						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
5.0	<u>BILL NO. 5: LUMINAIRES</u> Luminaires must be delivered with lamps packed separately. For Types, see "Schedule of Luminaires".					Rate only
5.1	Type A	No.	1			
5.2	Type B	No.	10			
5.3	Type N	No.	16			

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
6.0	BILL NO. 6: SMALL POWER					
6.1	Conduit PVC (SANS 950) conduit chased into brickwork, cast into concrete or fixed onto trusses including cutting, bending, saddles, bushes, wastage, etc.					
6.1.1	20mm	m	250			
6.1.2	32mm	m	30			
6.2	Conduit Boxes					
6.2.1	PVC round box for 20mm conduit, back or side	No.	9			
6.2.2	Galvanised steel, 100 x 100 x 50mm box for 20mm conduit built into brickwork or cast in concrete. (cover plates measured elsewhere)	No.	8			
6.2.3	Galvanised steel, 100 x 150 x 50mm box for 20mm conduit built into brickwork or cast in concrete. (cover plates measured elsewhere)	No.	1			
Carried Forward to Next Page						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
6.3	<u>Galvanised SANS Approved Conduit</u> Supply, delivery to site, installation of conduit on surface, in ceiling void, chased into or cast into concrete works and/or brickwork, including bushes, locknuts, couplings, saddles, etc.					
6.3.1	20 mm diameter conduit	m	5			
6.3.2	32 mm diameter conduit	m	5			
6.4	<u>Conductors</u> The supply and installation of PVC insulated stranded single core copper conductors drawn into conduits and ducting					
6.4.1	2,5mm ² PVC black and red	m	350			
6.4.2	2.5mm ² PVC insulated green/yellow earth wire	m	175			
6.4.3	6mm ² PVC black and red	m	10			
6.4.4	4mm ² insulated green/yellow earth wire	m	10			
6.5	<u>Equipment and Control Gear</u>					
6.5.1	Flush wall mounted 16 Amp 3-pin switched socket outlet with cover plate					
6.5.1.1	1x 16A Single and 1x 6A socket outlet	No.	6			
6.5.1.2	2x 16A Single and 2x 6A socket outlet	No.	1			
6.5.2	Power skirting mounted 16 Amp and 6A 3-pin switched socket outlets including clips and covers					
6.5.1.3	1x 16A Single and 1x 6A socket outlet	No.	1			
6.5.1.4	1x 16A Single dedicated socket outlet	No.	1			
6.5.3	Surface mounted 16 Amp 3-pin switched socket outlet with cover plate in ceiling voids					
6.5.3.1	Standard single socket outlet	No.	1			
6.5.3	Indoor surface mounted isolators including box					
6.5.3.1	20A - 32A DP	No.	1			
6.6.4	Outdoor surface mounted isolators including box					
6.6.4.1	20A - 32A DP	No.	1			Rate Only
TOTAL BILL NO. 6 TO PRICE SUMMARY						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
7.0	<u>BILL NO. 7: TELEPHONE AND DATA SYSTEM</u>					
7.1	Double skin brick 1000mm deep manhole with heavy duty cover with the following minimum inside dimensions: 800mm x 800mm	No.	1			Rate Only
7.2	Surface mounted distribution board with architrave, 10mm thick soft wood back board (plywood or shutter board) and hinged door:					
7.2.1	450mm x 450mm	No.	1			
7.3	Cable sleeves Flexible (Kabelflex) PVC cable sleeves laid in open trench including cutting, backfilling and compacting.					
7.3.1	Allow for the importing of suitable soil to be used as either bedding layer and/or backfilling layer (bedding to be in layer of 75mm and backfilling in layers of 150mm)	m ³	10			
7.4	Conduit PVC (SANS 950) conduit chased into brickwork, cast into concrete or fixed onto trusses including cutting, bending, saddles, bushes, wastage, etc.					
7.4.1	32mm conduit	m	27			
7.5	Conduit Accessories & Boxes PVC round box for 25mm and 32mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed onto trusses including couplings bushes, cover plates and fixing materials	No.	10			
7.6	Galvanised steel draw wires drawn into conduit(1.6mm)	m	100			
7.7	<u>Power skirting sockets</u>					
7.7.1	Data RJ88	No.	1			
7.7.2	Data RJ45	No.	1			
TOTAL BILL NO. 7 TO PRICE SUMMARY						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
8.0	<u>BILL NO. 8: SUNDRY ITEMS</u>					
8.1	<u>Training</u>					
8.1.1	Training of Client's Representative at Practical Completion.	Item	1			
8.1.2	Training of Client's Representative at end of Defects Liability Period.	Item	1			
8.2	Eskom call out to switch off for cable installation into their Kiosk.	Item	1	-----	-----	
8,3	Compliance with Construction Regulations, Health and Safety Act and any other statutory regulations.	Item	1			
8,4	Guarantee and maintenance for the new section of Electrical Installation including fittings, materials and workmanship for a period of TWELVE MONTHS after date of Practical Completion.	Item	1			
8,5	Allow for testing, balancing and commissioning the whole of the electrical installation as laid down in the specification and for re-testing as may be required after the making good of all defective work to the satisfaction of the Department and the Engineer.	Item	1			
8,6	Provision of Certificates of Compliance for the Electrical Installation.	Item	1			
8,7	Provision for the drawings showing all site cable routes, conduit routes, draw boxes and positions of outlets, etc.	Item	1			
8,8	Tools and Equipment	Item	1			
8,9	Eskom Prepaid meter upgrade	Item	1			
8,9	Any additional item not specifically mentioned or included in the Bills of Quantities which the Tenderer may wish to detail.	Item	1			
	<u>Detail below:</u>					
TOTAL BILL NO. 8 TO PRICE SUMMARY						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
9	<u>BILL NO. 9: LIGHTNING PROTECT INSTALLATION</u>					
9.1	<u>LIGHTNING PROTECTION SYSTEM</u> 1. The Contractor shall price and make allowance for the complete Lightning Protection System to the Installation including the required soil resistivity survey to be carried out on site, the issuing of the final design of the earthing system, the submitting of same for approval, the supply, installation, testing, commissioning, issuing of a SABS approved earthing certificate and the required guarantee of the system for 12 months. 2. The Contractor shall ensure that the general bonding of the buildings electrical installation is carried out to Clause 6.13 of SANS 10147 Bonding Lightning Protection System to Structures. Where applicable all steel roof sheeting to the structure shall be suitably earthed to the special earth systems. 3. Grade "A" type earth electrodes (earth spikes of at least 1,5m in length) shall be driven into the ground just off the centre line of each of the building gable walls of each individual block or where required. 4. In each instance these earth spikes must be interconnected by means of approved earth spike clamps and 35mm ² insulated copper earth conductor to a height of 500mm AGL, where it is joined by means of a Bi-metal lug to an 8mm round aluminim conductor which through a 25mm conduit exits 200mm below the roof covering where it is terminated and sealed off by means of silicon sealer.					
9.1.1	Carryout the required earth resistivity tests / surveys on site, final design for the proposed earthing system and <u>completion of the LPS Risk Assessment</u> . All to be submitted to Engineer for approval.	Item	1			
9.2	1,5m long Cadweld type copper electrodes driven into the ground 500 mm BGL	No.	9			
9.3	35mm ² insulated copper earth conductor from earth electrode to inspection box connection	m	14			
9.4	Complete termination arrangement of the 35mm ² insulated copper earth conductors to earth electrode.	No.	9			
9.5	Complete termination arrangement of the 35mm ² insulated copper earth conductors to the 8mm round Aluminim conductor including bi metal lugs and inspection box.	No.	9			
9.6	8mm round aluminium conductor from roof termination to inspection box	m	23			
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BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
9.7	Complete termination of 8mm round aluminium conductor to roof sheeting	No.	9			
9.8	Bonding of metal drainage down pipes and items.	Item	1			
9.9	25mm Diameter pvc Conduit inside the wall as indicated on the drawing.	m	40,5			
9.10	Soft Excavation for earth conductor 500mm deep.	m ³	2			
9.11	Lightning Protection Sundries	Item	1			
9.13	Testing					
9.13.1	Supply and testing apparatus and testing in accordance with SANS Code.	Item	1			
9.13.2	Testing of joint continuity	Item	1			
9.13.3	Testing of Lightning Protection System	Item	1			
9.13.4	Testing of Earthing Points	Item	1			
9.13.5	Soil Resistivity Test and Report	Item	1			
TOTAL BILL NO. 9 TO PRICE SUMMARY						

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
10.0	<u>BILL NO. 10: LP GAS INSTALLATION & VENTILATION SYSTEM</u>					
10.1	<u>Gas Stove (Boiling Tables), complete with stainless splashbacks on sides and back</u>					
10.1.1	Supply and install 1 burner boiling table (600x600)	No.	1			
10.2	<u>Piping Installation</u> Copper pipe: capillary type copper tube fittings to SANS 1067 Part 2 including cutting, reaming and soldering of joints with hard type solder and pipe supports as specified. NOTE: Straight couplers, fitting reducers and bends up to 28 diam will not be measured as separate items and are to be included in the rates for straight piping. Supply, delivery to site and installation to SANS 1453 copper pipe work Class as specified.					
10.2.1	<u>Copper Pipe</u>					
10.2.1.1	LPG - 22 mm	m	20			
10.2.2	<u>Copper Pipe Fittings</u>					
	Elbow 90° - 22mm	No.	8			
10.2.3	<u>Couplers</u>					
10.2.3.1	22mm	No.	8			
10.2.4	<u>Pipe Identification and Colour Coding and Earthing</u>					
10.2.4.1	Application of colour banding and flow directions as per SANS 0224 and SANS 06	Item	1			
10.2.4.2	Bonding to earth of all piping at entrance to each building as per SANS 0224	Item	1			
10.3	<u>Manual Change-Over Regulator Complete</u>					
10.3.1	Manual change over, Regulator, Emergency shutoff above regulator, 2 on 2 off Manifold, 2 x 48kg LP Gas Bottles(Grade R) and all connections for outdoor installation in gas cage. Gas bottles to be fill at practical completion	No.	1			
10.4	<u>Emergency Shut-Off Valves and Manifolds</u>					
10.4.1	Supply, install, test and commission cylinder bank manifolds c/w isolating / non return valves, pigtails, primary regulators, safety valves valve vents, purge and test cocks, gauges, new service point and all other ancillaries.	No.	1			
10.5	<u>Gas Bottle Supports</u>					
	Supply, install, test and commission cylinder bank hot dip galvanised stands c/w holding chains, all as specified.					
10.6	<u>Cylinders</u>					
10.6.1	Deliver to site and installation of 48 kg LPG cylinder with deposits.	No.	2			
10.7	<u>Galvanised Cage</u>					
10.7.1	Deliver to site and installation of a galvanised cage to hold 2 x 48 kg LPG cylinder with deposits.	No.	1			
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BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
Brought Forward from Previous Page						
10.7	<u>Training</u>					
10.7.1	Complete training of the correct usage and dangers of the installation (To be completed on a date specified by the client. Including additional travelling required after completion of installation)	Item	1			
10.8.9	<u>Maintenance and guarantee of the installation</u>					
10.8.1	3 months maintenance and 1 year guarantee	Item	1			
10.9	<u>Operation and Maintenance Manuals</u>					
10.9.1	Supply 4 sets of operating and maintenance manuals	Item	1			
10.10	<u>Documentation</u>					
10.10.1	Submit complete approval and Municipal release forms.	Item	1			

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE		AMOUNT
				SUPPLY	INSTALL	
11.0	BILL NO. 1: FIRE PROTECTION AND DOMESTIC HOT WATER SYSTEM					
11.1	Fire Protection Installation Supply, Install, test, commission and provide 12 month guarantee for portable fire extinguishers (SANS 1910 compliant) fixed to wall with 250 x 500 x 25mm wrot Meranti backboard plugged and countersunk screwed to wall, complete with mild steel hook and bracket, etc.					
11.1.1	4.5kg CO2 Supply, Install, test, commission and provide 12 month guarantee for portable fire extinguisher cubicle, red in colour, fibreglass weatherproof wall mounted and etc.	No.	1			
11.1.2	4,5kg DCP Supply, Install, test, commission and provide 12 month guarantee for portable fire extinguisher cubicle, red in colour, fibreglass weatherproof wall mounted and etc.	No.	2			
11.1.3	Fire extinguisher cubicle to mount 2 x fire extinguishers Supply, Install, test, commission and provide 12 month guarantee for fire signage symbol, arrow and portable fire extinguisher.	No.	1			
11.1.4	Arrow - 190 x 190	No.	3			
11.1.5	Portable Fire Extinguisher - 190 x 190	No.	3			
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Brought Forward from Previous Page						
11.7	Solar Geyser All materials supplied shall be SABS approved and installation by accredited installers. Complete installation to be in accordance with SANS standards.					
11.7.1	Tank specification: Diameter - 550, Length - 1190mm, Bracket - 1000mm, Weight - 45kG, IPX rating - 4, Boiler material - 2.0mm steel, Casing material - 0.5mm Galvanised, Corrosion protection - ±3.0mm PEX, Guarantee - 10 Years, Suitable for all water conditions, Maintenance free, Insulation - 60mm off centre polyurethane foam, Electrical backup - 2kW Electrical element with adjustable thermostst, additional pocket control probe, Horizontal orientation, Safety valve operating temperature - 93° C - 98° C, Heat loss <1.94kW/24h. 'Flat plate collector specification: Effective Thermal Capacity - 16.96kJ/K, Total area - 2.005m x 1.003m = 2.01 square meters, Cover Material - Tempered Glass, Thickness of cover - 3mm, Thickness of absorber plate - 0.5mm, Absorption Coefficiency - 95 ± 2%, Number of Tubes - 7, Volume of absorber - 1.66L, Weight - 32kG, Guarantee - 5 Years	No.	1			
TOTAL BILL NO. 11 TO PRICE SUMMARY						

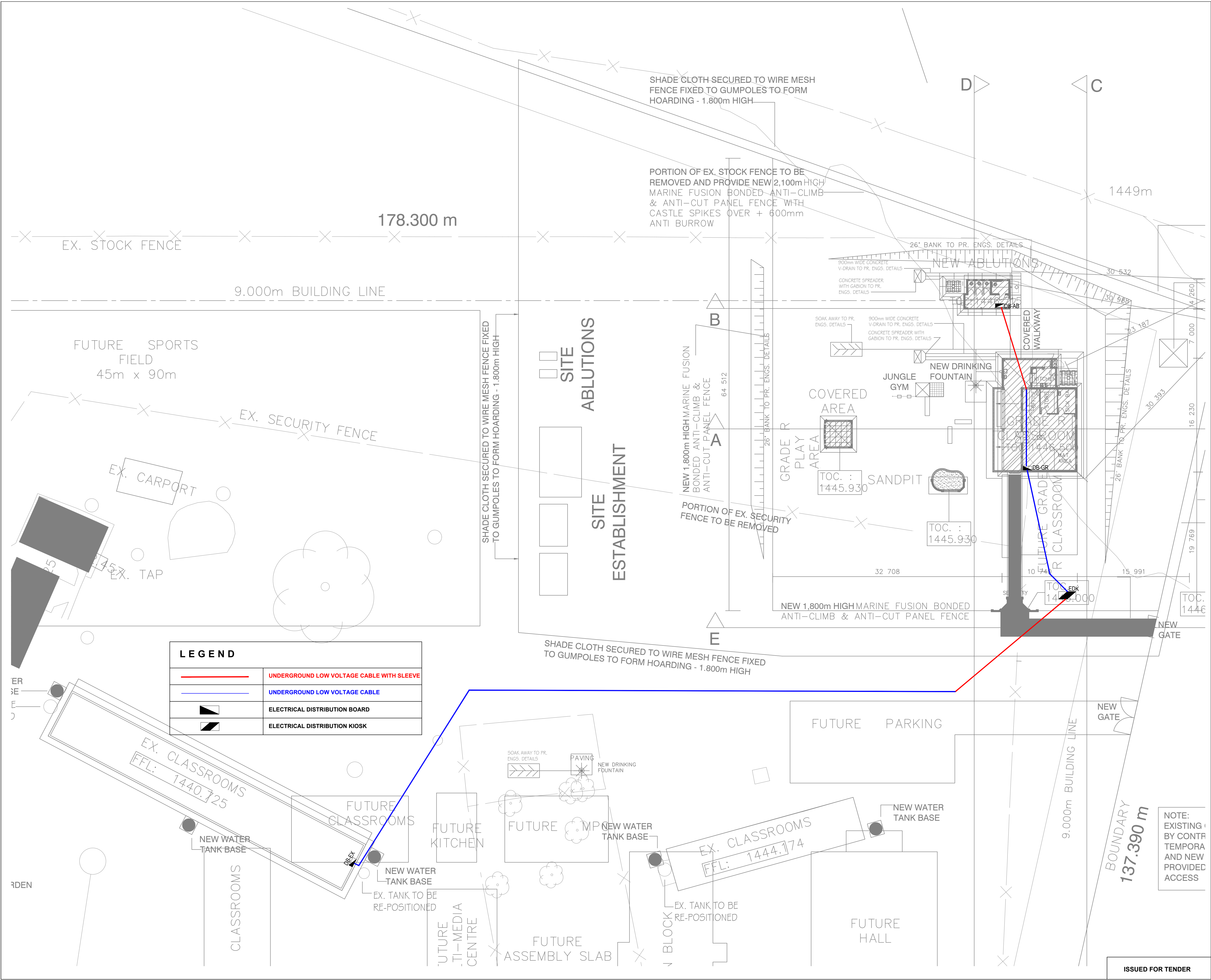
BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QNTY	RATE
12	<u>BILL No. 12 : ADJUSTMENTS TO SUB-CONTRACT VALUE</u>			
12.1	An adjustment to the contract value resulting from a contract instruction for additional work not covered by the rates in the sub-contract priced document.			
12.2	Rates excluding mark-up for adjustment to the sub-contract value.			
12.3	<u>Labour</u>			
12.3.1	Master Electrician			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.2	Licensed Electrician			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.3	Artisan			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.4	Apprentice stage 1			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.5	Apprentice stage 2			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.6	Apprentice stage 3			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
NOTE: ITEMS ENTERED ON THIS PAGE ARE NOT CARRIED FORWARD TO PRICE SUMMARY				

12.3.7	Econop 1			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.8	Econop 2			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.9	Econop 3			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.3.10	Electrician Assistant			
(a)	Normal time	Hour	1	
(b)	Week overtime	Hour	1	
(c)	Sunday	Hour	1	
(d)	Public Holidays	Hour	1	
12.4	<u>Materials</u>			
12.4.1	At cost. Invoices to be submitted as proof			
12.5	<u>Transport</u>			
12.5.1	0,5 ton bakkie	km	1	
12.5.2	1 ton bakkie	km	1	
12.5.3	3 ton bakkie	km	1	
12.5.4	Crane truck	Hour	1	
12.5.5	Other (Specify)			
12.6	<u>Plant</u>			
12.6.1	100W - 500W Drilling machine	Hour	1	
12.6.2	Angle Grinder	Hour	1	
12.6.3	Cutting Disc	Hour	1	
12.6.4	Rock Breaker	Hour	1	
12.6.5	Chasing machine	Hour	1	
12.6.6	Generator	Hour	1	
12.6.7	Vacuum cleaner for dust extraction from grinder	Hour	1	
12.6.8	Other (Specify)	Hour	1	
<u>NOTE:</u> ITEMS ENTERED ON THIS PAGE ARE NOT CARRIED FORWARD TO PRICE SUMMARY				

BUBESI JUNIOR SECONDARY SCHOOL - ELECTRICAL AND MECHANICAL INSTALLATION		
PRICE SUMMARY		
SECTION	DESCRIPTION	TOTAL AMOUNT
Bill No. 1	PRELIMINARY & GENERAL	
Bill No. 2	DISTRIBUTION BOARDS	
Bill No. 3	MAINS CABLING & WIRING	
Bill No. 4	GENERAL LIGHTING	
Bill No. 5	LUMINAIRES	
Bill No. 6	SMALL POWER	
Bill No. 7	TELEPHONE AND DATA SYSTEM	
Bill No. 8	SUNDRY ITEMS	
Bill No. 9	LIGHTNING PROTECTION INSTALLATION	
Bill No. 10	LP GAS INSTALLATION & VENTILATION SYSTEM	
Bill No. 11	FIRE PROTECTION AND DOMESTIC HOT WATER SYSTEM	
Bill No. 12	ADJUSTMENTS TO SUB-CONTRACT VALUE	NO PRICE
TOTAL EXCLUDING VAT TO BE CARRIED FORWARD TO FINAL SUMMARY		

PART 9: DRAWINGS



GENERAL NOTES:

- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
- DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS.
- A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
- FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
- CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
- SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
- NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
- DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
- ALLOW 4 X 20mmØ & 4 X 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
- IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
- TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
- IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
- CIRCUITING:
 - AC = AIR CONDITIONING
 - D = DEDICATED SSO
 - L = LIGHTING CIRCUIT
 - P = STANDARD SSO
 - XL = LIGHTING CIRCUIT ON STANDBY POWER
 - XP = STANDARD SSO ON STANDBY POWER
- DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
 - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
 - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
- ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.

NO.	DATE	REVISION	DRAWN
00	13-03-23	ISSUED FOR TENDER	Y.P.



CLIENT:



PRINCIPAL AGENT & ARCHITECTS:



Suite 1, Bisset House,
48 Bisset Street
Port Shepstone, 4240

Tel: 039 032 0003
Fax: 082 554 3427
Email: vhb@vhbassociates.co.za

ELECTRICAL / MECHANICAL ENGINEERS:

24 Botha Road,
Selborne
East London, 5201

Tel: 087 702 4198
Fax: 086 263 8571
Email: mxn@mxnep.com

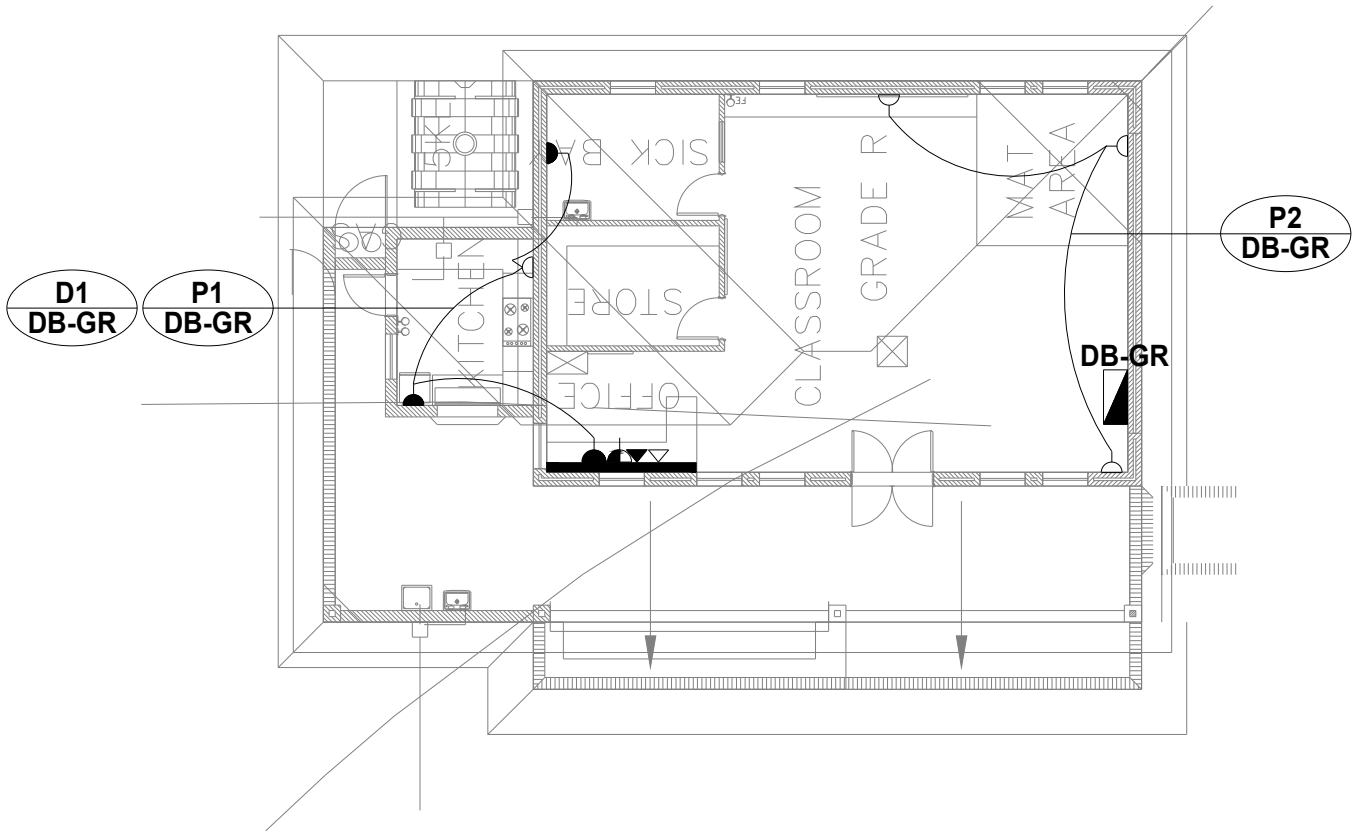
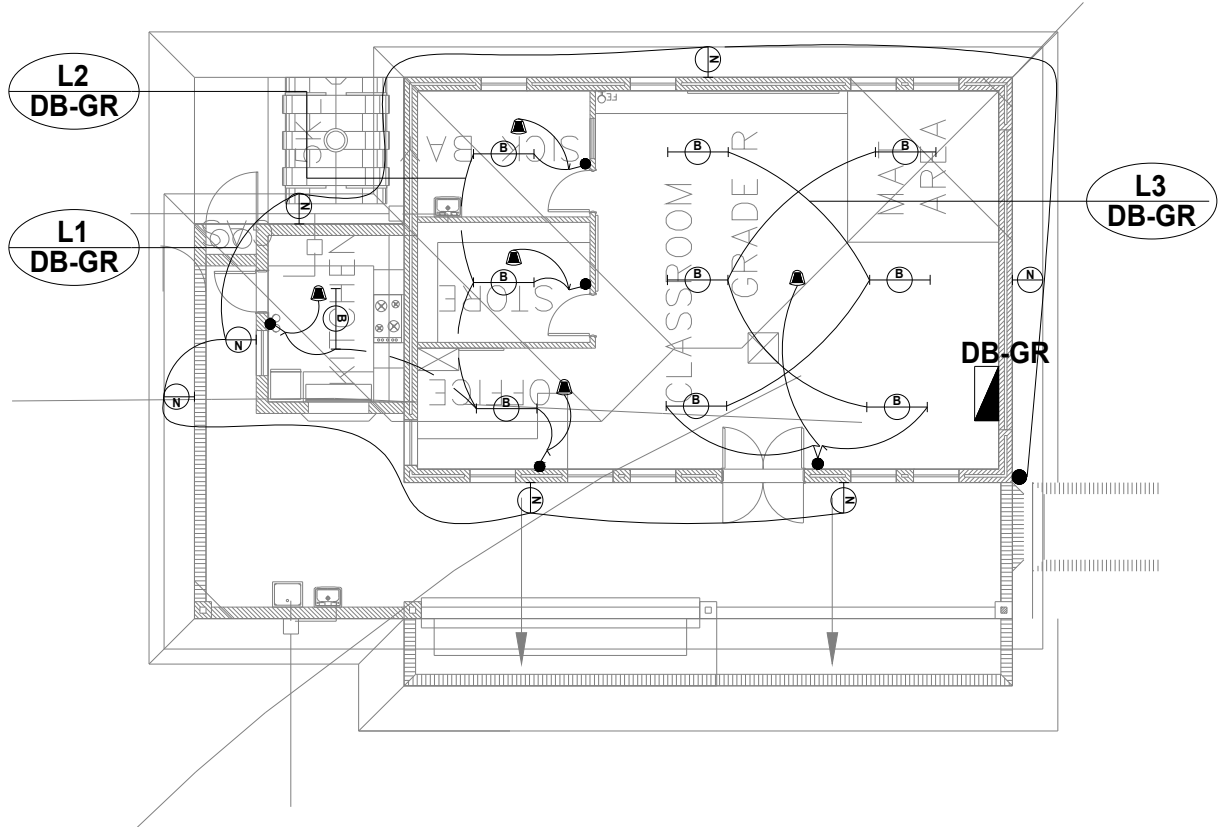
	SIGNATURE	DATE	SHEET SIZE
DESIGNED	Z. D.	13-03-23	A1 SCALE 1:250
DRAWN	Y.P.	13-03-23	
VERIFIED	M.N.	13-03-23	
VALIDATED	-	-	

PROJECT
BUBESI SCHOOL

EMIS: 200500061
PRIORITY: ECD

DRAWING TITLE
SITE PLAN: ELECTRICAL SERVICES
SLEEVE RETICULATION

PROJECT NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
1613	ELECTRICAL	1613-BU-T-E-100E	T	00



L E G E N D	
	PHOTO CELL
	MOTION SENSOR (PASSIVE); NOTE: OCCUPANCY SENSORS TO BE WIRED BETWEEN THE CIRCUIT BREAKER AND THE LIGHT SWITCH
	1 LEVER - 1 WAY- LIGHT SWITCH
	2 LEVER - 1 WAY - LIGHT SWITCH
	10W - LED OUTDOOR DECORATIVE WALL MOUNTED BULKHEAD LUMINAIRE WITH IP65 RATING
	46W - LED SURFACE MOUNT LUMINAIRE WITH FROSTED PRISMATIC DIFFUSER
	ELECTRICAL DISTRIBUTION BOARD
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) AT 450mm A.F.F.L.
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) AT 450mm A.F.L.
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) 1200mm A.F.L OR 300mm ABOVE WORKTOPS
	16A 3-PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) 1200mm A.F.L OR 300mm ABOVE WORKTOPS
	16A 3-PIN DEDICATED SWITCHED SOCKET OUTLET (RED) AT 450mm A.F.F.L.
	POWER SKIRTING ABOVE FLOOR SKIRTING OR AT 450mm A.F.F.L.
	DATA LINE CONNECTION POINT
	TELEPHONE POINT

- GENERAL NOTES:
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NO.	DATE	REVISION	DRAWN
00	13-03-23	ISSUED FOR TENDER	Y.P.

CLIENT:



ARCHITECTS:



ELECTRICAL / MECHANICAL ENGINEERS:

24 Botha Road,
Selborne
East London, 5201

Tel: 087 702 4198
Fax: 086 263 8571
Email: mxn@mxnep.com

	SIGNATURE	DATE	SHEET SIZE
DESIGNED	Z. D.	13-03-23	A3
DRAWN	Y.P.	13-03-23	SCALE
CHECKED	M.N.	13-03-23	1:150
VALIDATED	-	-	STATUS (LEGEND) - INFORMATION - CONSTRUCTION - AS-BUILT

PROJECT
BUBESI SCHOOL

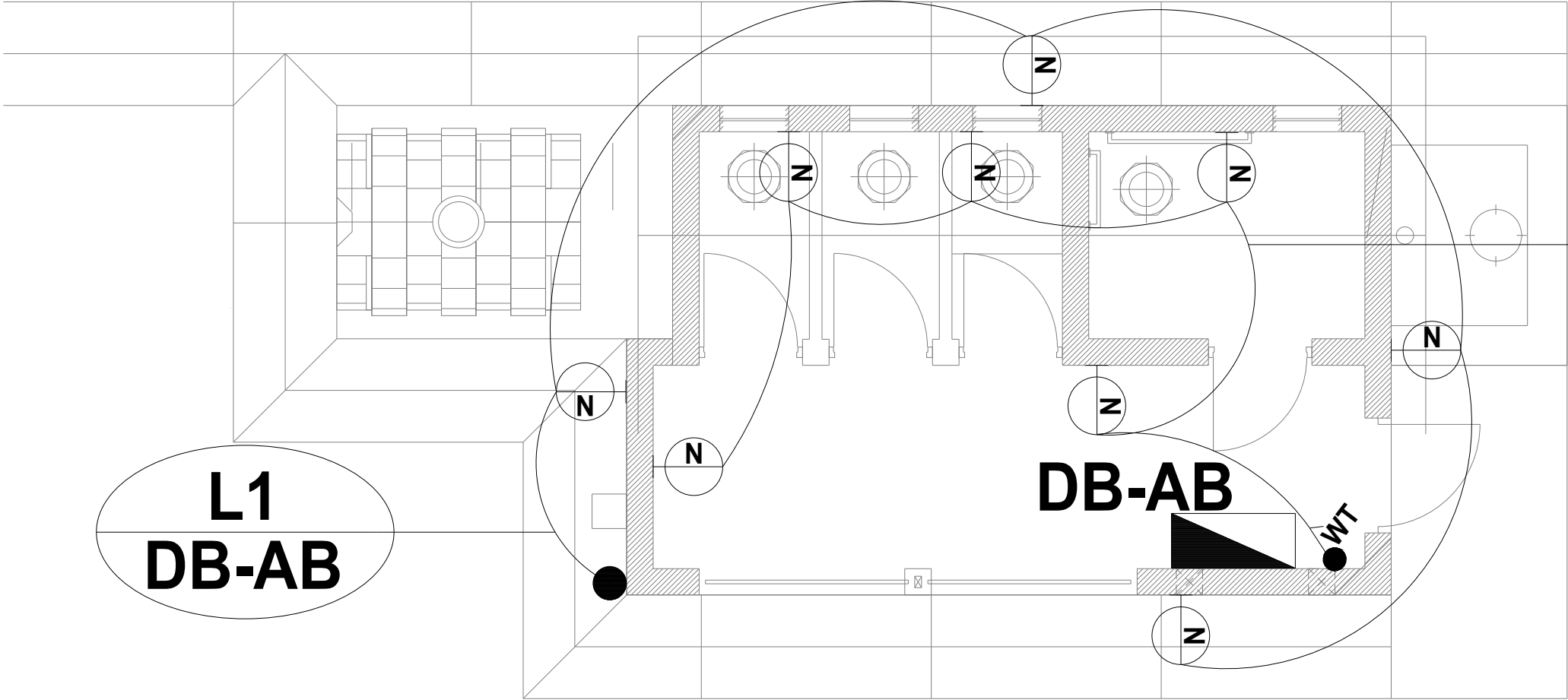
EMIS: 200500061
PRIORITY: ECD

DRAWING TITLE

GRADE-R: LIGHTING & POWER
LAYOUT

PROJECT NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
1613	ELECTRICAL	1613-BU-T-E-101	T	00

ISSUED FOR TENDER



L2
DB-AB

L1
DB-AB

DB-AB

L E G E N D	
	PHOTO CELL
	10W - LED OUTDOOR DECORATIVE WALL MOUNTED BULKHEAD LUMINAIRE WITH IP65 RATING
	ELECTRICAL DISTRIBUTION BOARD
	1LEVER-1 WAY- WATER TIGHT LIGHT SWITCH

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PROJECT

BUBESI SCHOOL

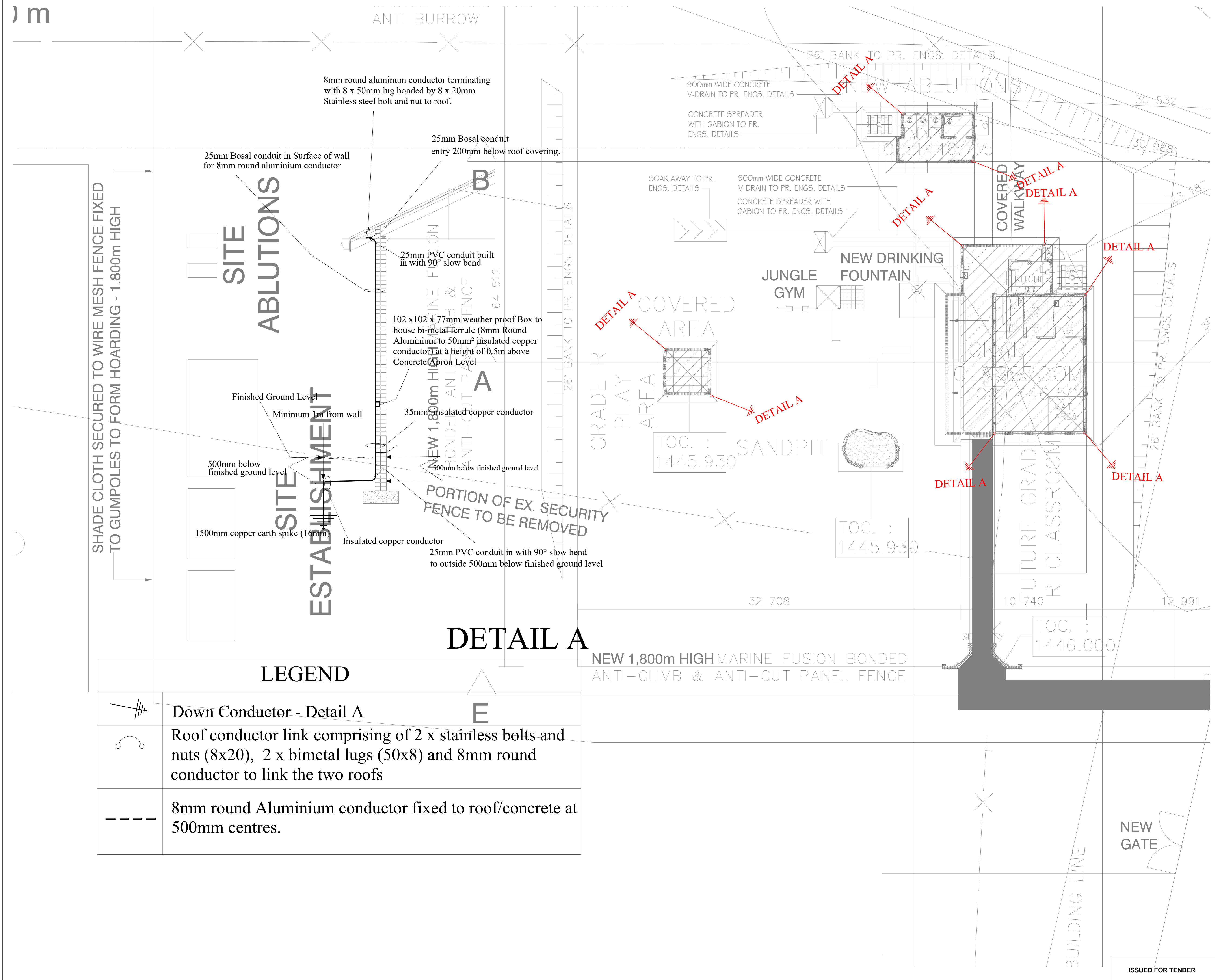
EMIS:200500061
PRIORITY: ECD

DRAWING TITLE

ABLUTIONS: LIGHTING LAYOUT

ISSUED FOR TENDER

PROJECT NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
1613	ELECTRICAL	1613-BU-T-E-102	T	00



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VALIDATED	-	-	1 = INFORMATION 2 = APPROVED 3 = CONSTRUCTION AP-AS-BUILT

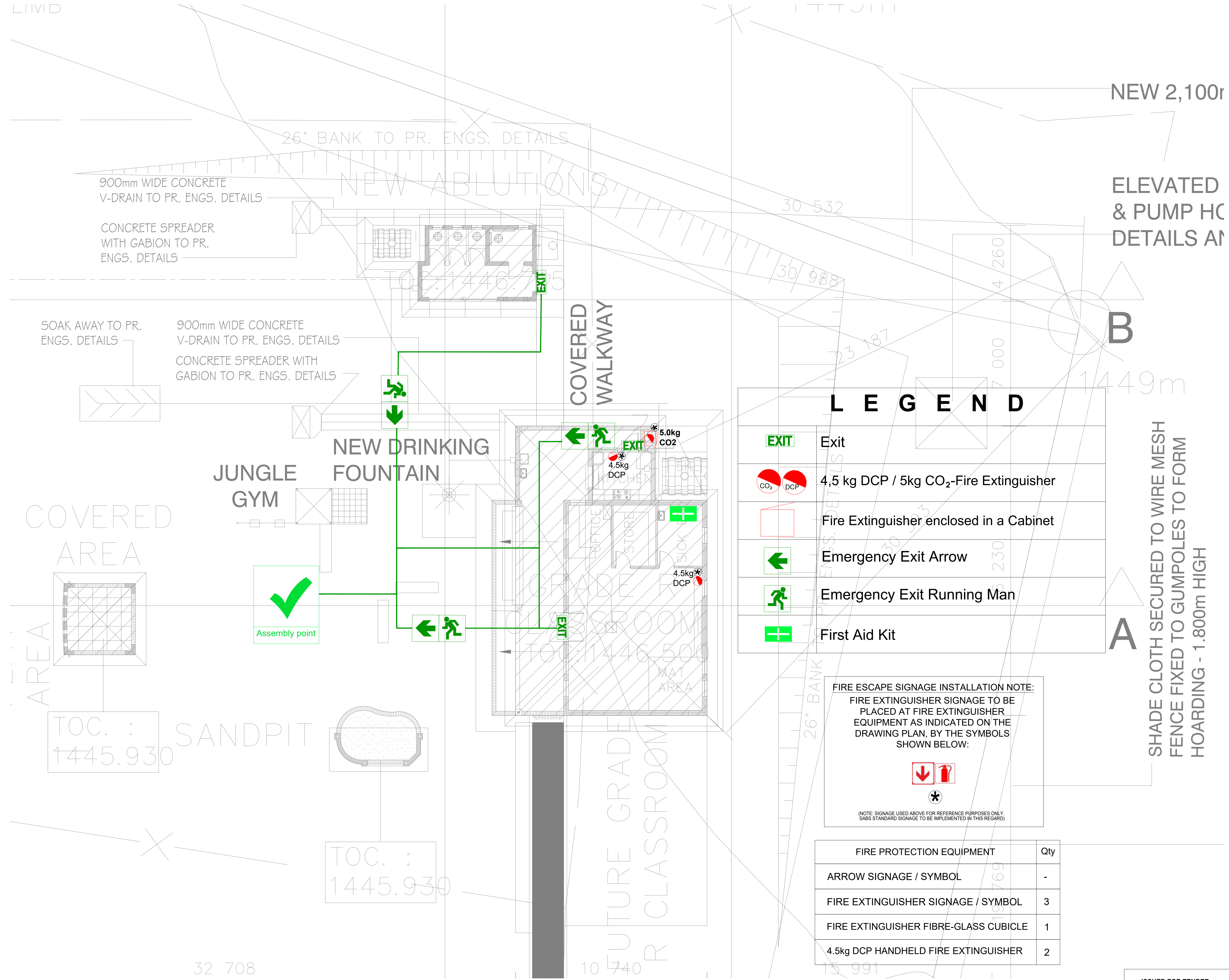
PROJECT
BUBESI SCHOOL

EMIS: 200500061
PRIORITY: ECD

DRAWING TITLE

SITE PLAN: LIGHTNING PROTECTION
SYSTEMS LAYOUT

PROJECT NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
1613	ELECTRICAL	1613-BU-T-E-100LPS	T	00



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CLIENT:



Independent development trust

PRINCIPAL AGENT & ARCHITECTS:



ARCHITECTURE & PROJECT MANAGEMENT

Suite 1, Bisset House,
48 Bisset Street,
Port Shepstone, 4240

Tel: 039 032 0003
Fax: 062 554 3427
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VERIFIED	M.N.	13-03-23	1:100
VALIDATED	-	-	STATUS LEGEND P = INFORMATION C = CONSTRUCTION AP-AS-BUILT

PROJECT

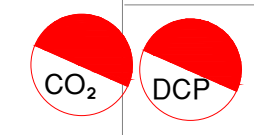
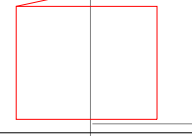
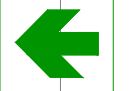
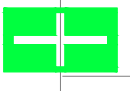
BUBESI SCHOOL

EMIS: 200500061
PRIORITY: ECD

DRAWING TITLE

SITE PLAN: EVACUATION PLAN

PROJECT NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
1613	MECHANICAL	1613-BU-T-M-100	T	00

L E G E N D	
	Exit
	4,5 kg DCP / 5kg CO ₂ -Fire Extinguisher
	Fire Extinguisher enclosed in a Cabinet
	Emergency Exit Arrow
	Emergency Exit Running Man
	First Aid Kit

FIRE ESCAPE SIGNAGE INSTALLATION NOTE:

FIRE EXTINGUISHER SIGNAGE TO BE PLACED AT FIRE EXTINGUISHER EQUIPMENT AS INDICATED ON THE DRAWING PLAN, BY THE SYMBOLS SHOWN BELOW:




(NOTE: SIGNAGE USED ABOVE FOR REFERENCE PURPOSES ONLY. SABS STANDARD SIGNAGE TO BE IMPLEMENTED IN THIS REGARD)

FIRE PROTECTION EQUIPMENT	Qty
ARROW SIGNAGE / SYMBOL	-
FIRE EXTINGUISHER SIGNAGE / SYMBOL	3
FIRE EXTINGUISHER FIBRE-GLASS CUBICLE	1
4.5kg DCP HANDHELD FIRE EXTINGUISHER	2

ISSUED FOR TENDER

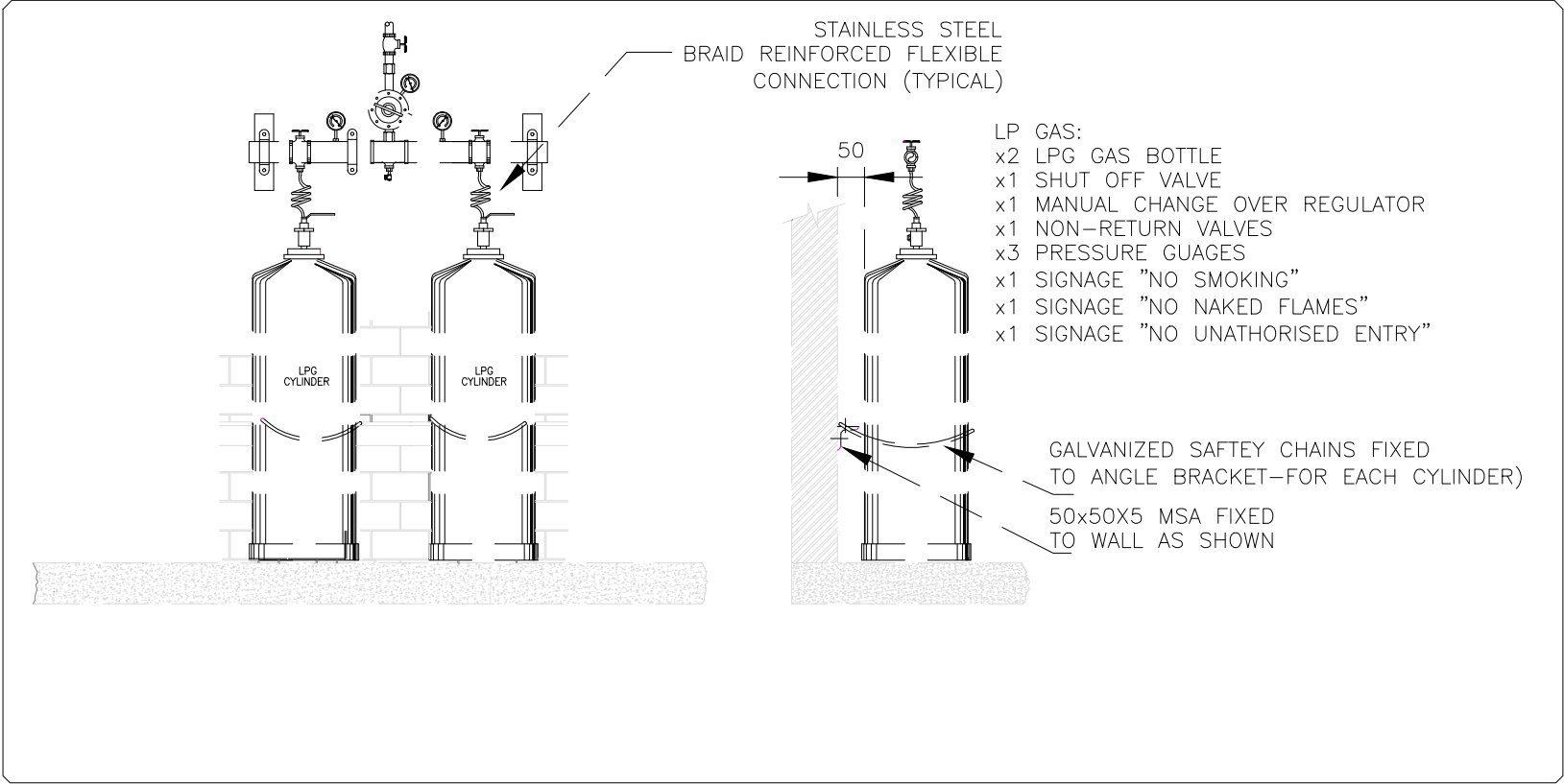
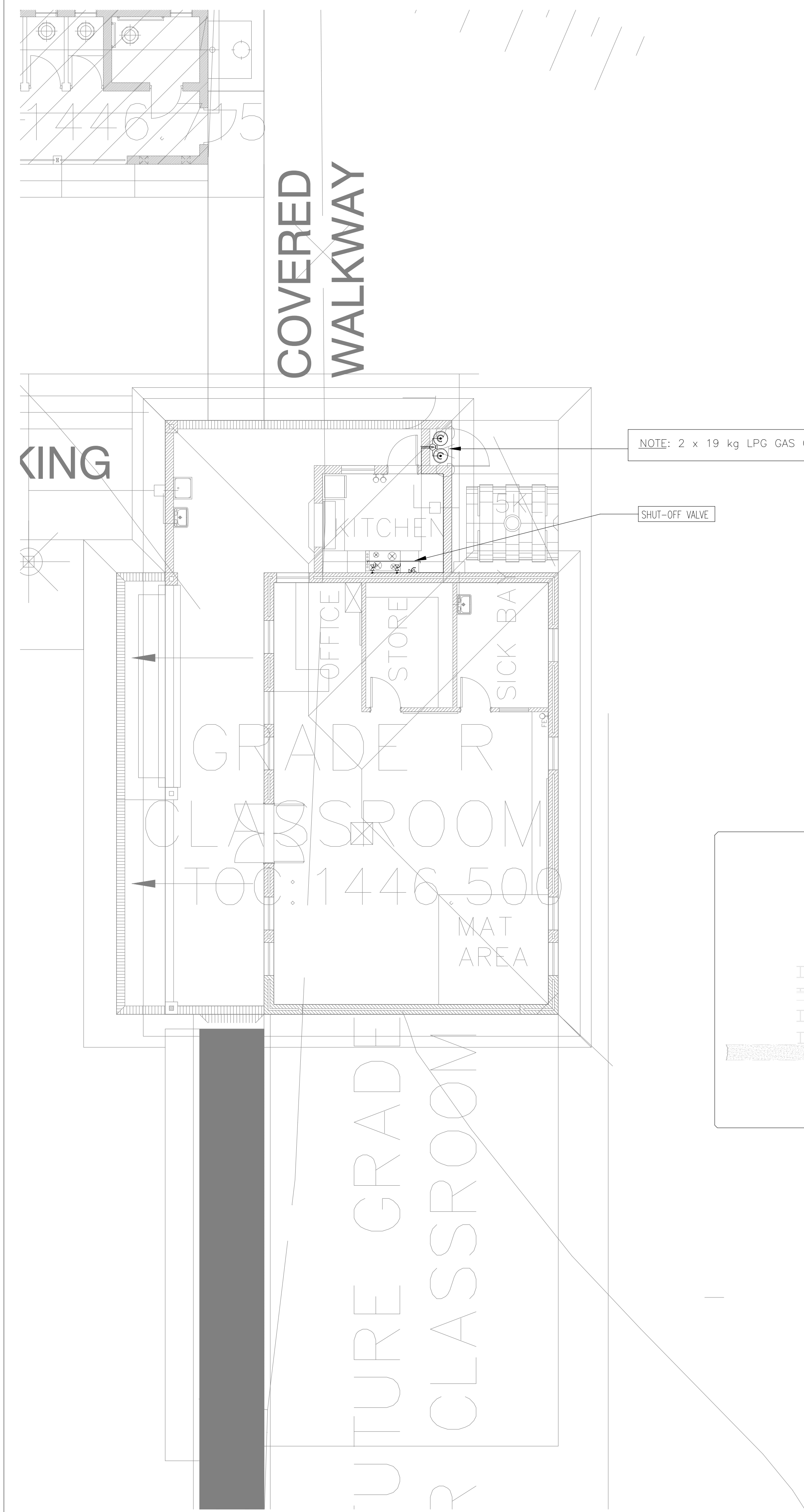
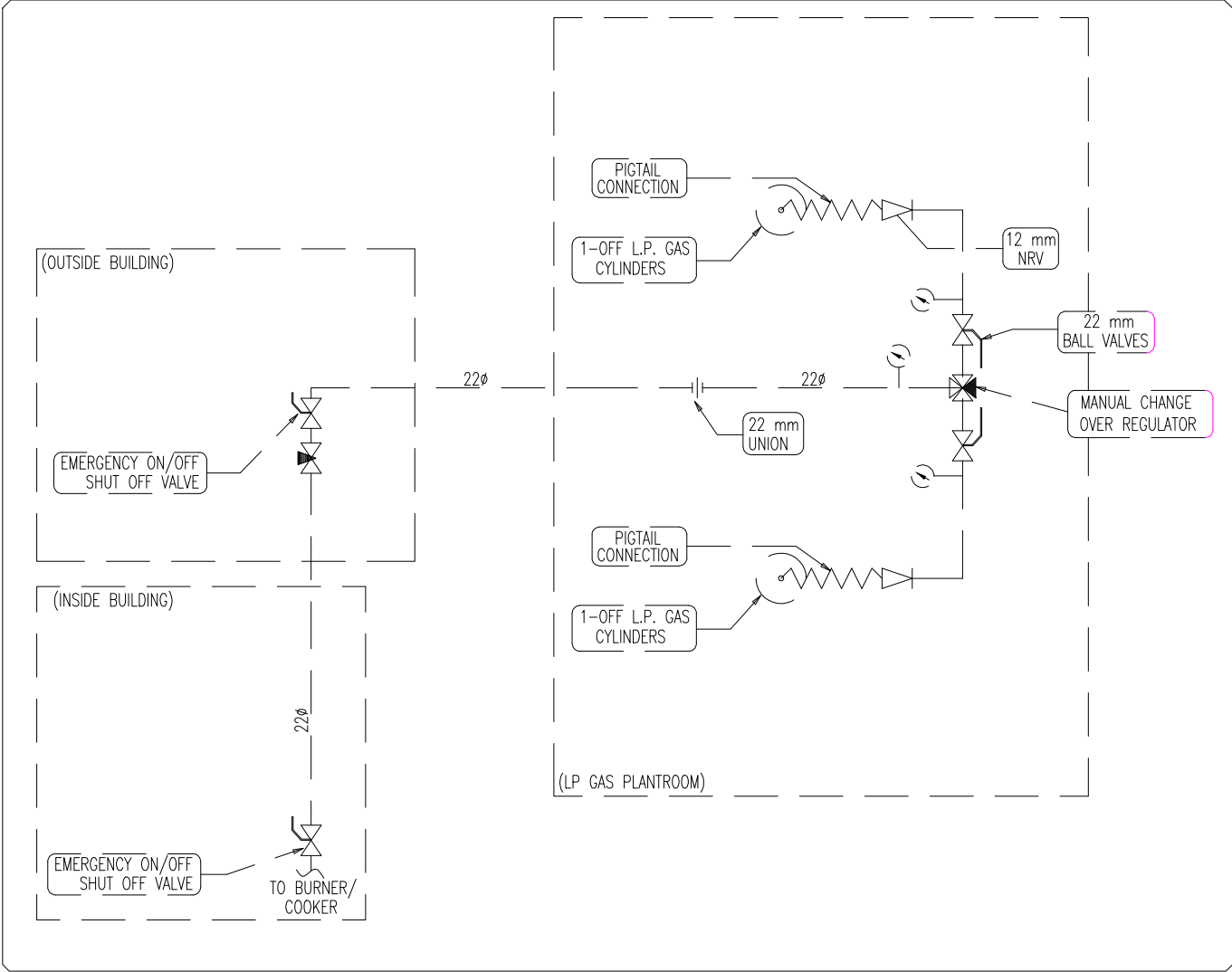


ILLUSTRATION OF LP GAS BANK
ARRANGEMENTS
(N.T.S.)



TYPICAL L.P. GAS PIPE SCHEMATIC

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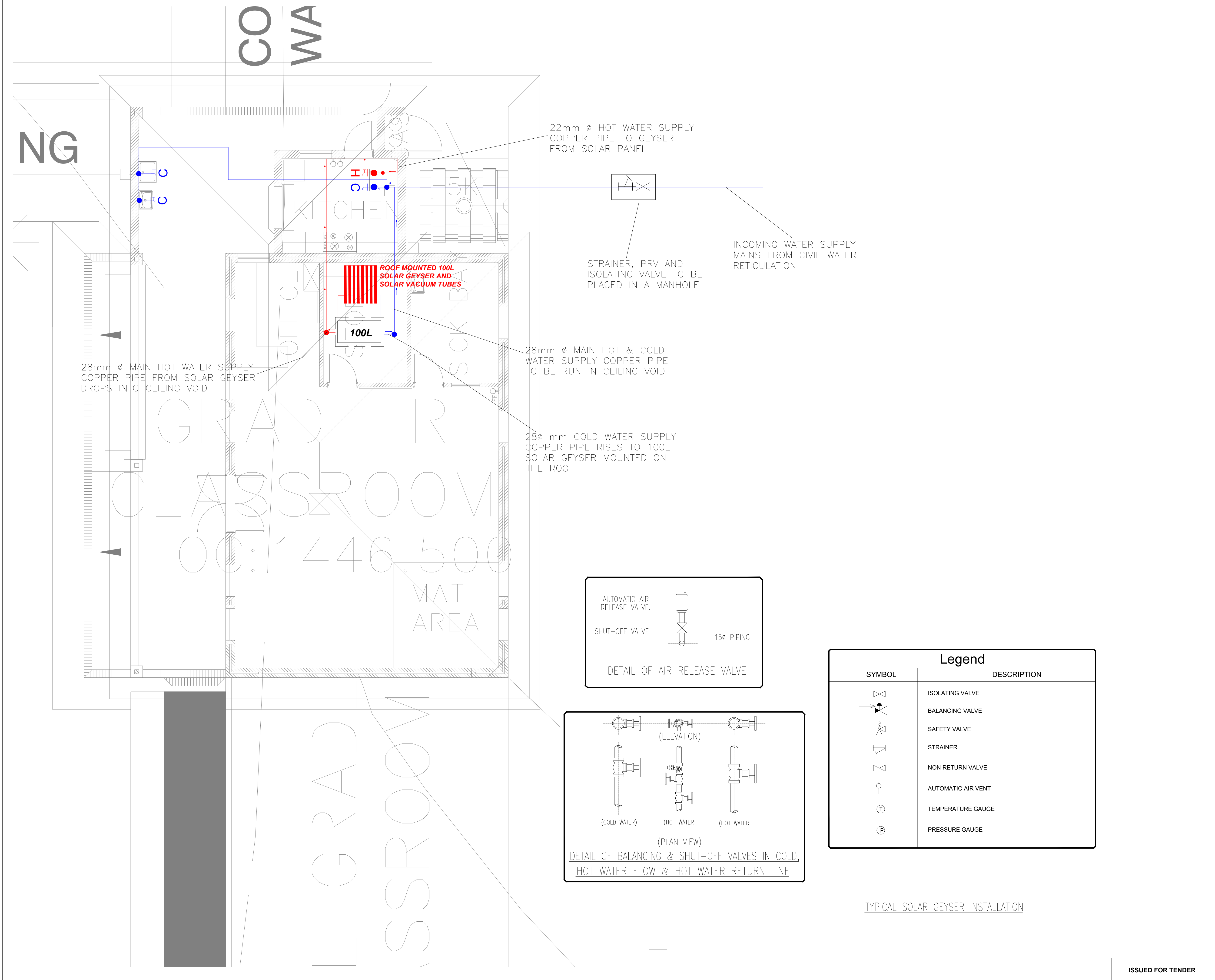
PROJECT
BUBESI SCHOOL

EMIS: 200500061
PRIORITY: ECD

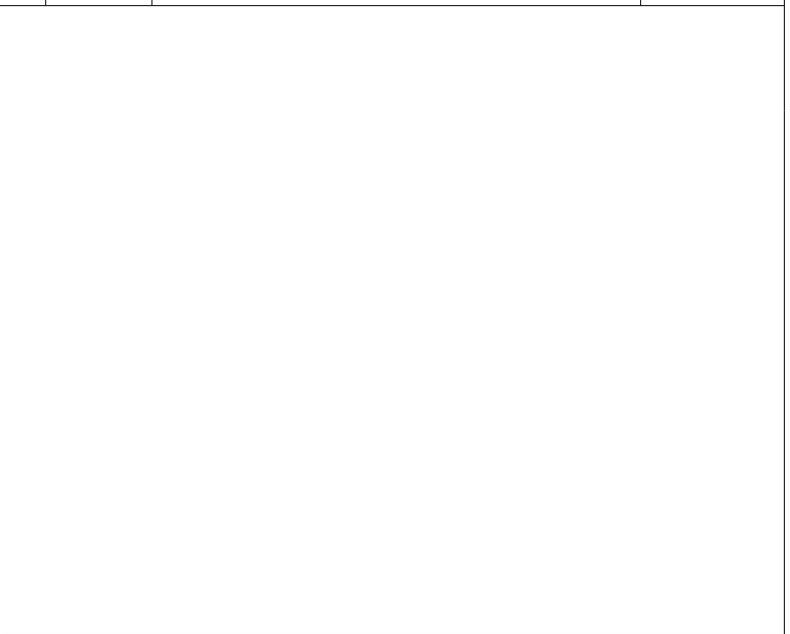
DRAWING TITLE
SITE PLAN: LP GAS

PROJECT NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
1613	MECHANICAL	1613-BU-T-M-101	T	00

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M.N.	13-03-23	STATUS LEGEND P = PROPOSED C = CONSTRUCTION AP-AS-BUILT	
-	-		

PROJECT			
BUBESI SCHOOL			
EMIS: 200500061 PRIORITY: ECD			
DRAWING TITLE			
SITE PLAN: GEYSER			
PROJECT NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS REVISION
1613	MECHANICAL	1613-BU-T-M-102	T 00

ISSUED FOR TENDER

ADDENDUM A

Occupational Health and Safety Regulations

GOVERNMENT NOTICE
DEPARTMENT OF LABOUR

No. R.

7 February 2014

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993

CONSTRUCTION REGULATIONS, 2014

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

ADDENDUM A

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
Regulation 3 of the Construction Regulations, 2014

NOTIFICATION OF CONSTRUCTION WORK

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

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

2. Principal contractor's compensation registration number: _____

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

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

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

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

5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of regulation 6.(1). _____

6. Name/s of principal contractor's sub-ordinate supervisors on site appointed in terms of regulation 6.(2).

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

8. Nature of the construction work:

9. Expected commencement date: _____

10. Expected completion date: _____

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

12. Planned number of contractors on the construction site accountable to principal contractor:

13. Name(s) of contractors already chosen.

Principal Contractor

Date

Client

Date

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

ADDENDUM B

Occupational Health and Safety Specification

INDEPENDENT DEVELOPMENT TRUST

(Hereinafter referred to as the Employer)

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

This specification shall be used in conjunction with all other applicable safety specifications, legislation and regulations in force at the time of the contract. Where unique site specifications are in force, those site specifications shall take precedence over this Specification.

IDT East London Office
Palm Square Business Park
Silverwood House, Bonza Bay Road
BEACON BAY, EAST LONDON
5200

Contact:

Name: Ms. N. Dyasi

Telephone: (043) 711 - 6000

ADDENDUM “A”

PRO-FORMA AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT 1993

PRO-FORMA AGREEMENT IN TERMS OF

OCCUPATIONAL HEALTH AND SAFETY ACT 1993 – SECTION 37 (2)

NEW CONSTRUCTION SAFETY REGULATIONS

The above-mentioned regulations were promulgated in the Govt. Gazette on Friday, 18 July 2014 under the Occupational Health & Safety Act (85 of 1993) and are now in force.

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act 1993 (Act 85 of 1993, hereinafter referred to as the Act), that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:

- (a) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all the relevant provisions of the Act and the regulations promulgated in terms of the Act, and the Employer's Health and Safety Specifications included in the contract documents.
- (b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations and the Employer's Health and Safety Specifications included in the contract documents will be complied with in all respects.
- (c) In relation to any work or activity performed by the Contractor, his workmen or any other person for whose acts or omissions the Contractor is responsible in terms of the Contract, the Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from itself being obliged to comply with any of the aforesaid duties, obligations and prohibitions.
- (d) The Contractor agrees that any duly authorised officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraphs (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records held by the Contractor.
- (e) The Contractor shall be obliged to report forthwith in writing to the Representative/Agent full details of any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract.
- (f) Forward "safety meeting" minutes to the representative/Agent.

For the Employer: _____ Date: _____

Witnesses: 1) : _____ 2) _____

For the Contractor: _____ Date: _____

Witnesses: 1) : _____ 2) _____

ADDENDUM “B”

NOTIFICATION OF CONSTRUCTION WORK

NOTIFICATION OF CONSTRUCTION WORK
(Regulation 3 of the Construction Regulations, 2014)

1. CONTRACTOR

1.1 Name and postal address of Contractor :

1.2 Name and telephone number of Contractor's contact person :

1.3 Contractor's compensation registration number :

1.4 Name and telephone number of Contractor's Construction Supervisor :

1.5 Physical address of the construction site or site office:

1.5 Estimated number of persons on the construction site :

1.6 Estimated number of Subcontractors on the construction site accountable to the Contractor :

2. EMPLOYER

2.1 Name and postal address of Employer :

2.2 Name and telephone number of Employer's Principal Agent:

3. DESIGN CONSULTANTS

3.1 Name and postal address of design consultants:

3.1.1 Construction project managers/ Principal Agents:

VHB ASSOCIATES
48 BISSET STREET,
PORT SHEPSTONE
4240
Tel: 039-032 0002
Fax: 086 577 7713

3.1.2 Architects:

VHB ASSOCIATES
48 BISSET STREET,
PORT SHEPSTONE
4240
Tel: 039-032 0002
Fax: 086 577 7713

3.1.3 Quantity Surveyor:

Agent's name : Maxfield Quantity Surveyors
Telephone: 078 111 7370 / 068 083 7211
Facsimile:
Address (physical): 5 Canno Street, Fort Galre, Mthatha

3.1.4 Structural engineer :

Agent's name : Leko Engineering
Telephone: 074 531 0037
Facsimile:
Address (physical): 63 LEEDS ROAD, MTHATHA

3.1.4 Electrical engineer:

Agent (3) is: MXN ELECTRICAL ENGINEERING
Agent's service: ELECTRICAL ENGINEERING
Telephone: 087 702 4198
Facsimile: 043 722 5339
Address 24 Botha Road, Selborne, East London

3.1.5 Civil engineer :
Agent's name : Leko Engineering
Telephone: 074 531 0037
Facsimile:
Address (physical): 63 LEEDS ROAD, MTHATHA

3.1.6 Security engineer :

3.1.7 Other (if any) :

3.2 Name and telephone number of design consultant's contact person :

3.2.1 Construction project managers/ Principal Agent :

AS PER ABOVE 3.1 _____

3.2.2 Architects :

AS PER ABOVE 3.1 _____

3.2.3 Quantity Surveyor:

AS PER ABOVE 3.1 _____

3.2.4 Structural engineer :

AS PER ABOVE 3.1 _____

3.2.5 Electrical engineer :

AS PER ABOVE 3.1 _____

3.2.6 Mechanical engineer :

AS PER ABOVE 3.1 _____

3.2.7 Civil engineer :

AS PER ABOVE 3.1 _____

3.2.8 Security engineer :

3.2.9 Other (if any) :

4. THE WORKS

Nature of the works:

Grade R Classroom Block (1 x classroom, 1 x store room, 1 x kitchen overall approximate size 108 square meters). Undercover play area (approximate size 16 square meters). Undercover sand pit (approximately size 12 square meters). VIP toilet block (3 x Pit Toilet) .Site works generally comprising of bulk earthworks, open walkways, concrete aprons, storm water channels, rainwater tanks on bases, 1 x elevated rainwater tank on stand, jungle gym, security fencing all round GRADE R and school perimeter and entrance structure. New building to have full electrical installation

Commencement date :

Completion date :

Contractor: _____ Date: _____

Employer: _____ Date: _____

THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.

ALL CONTRACTORS THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER CONTRACTOR ON THE SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

ADDENDUM C

Environmental Management Plan

TO BE PROVIDED BY THE SUCCESSFUL BIDDER

ADDENDUM I

Drawings

See attached

INDEPENDENT DEVELOPMENT TRUST

C3 Scope of Work

1 DESCRIPTION OF THE WORKS

1.1 Employer's objectives

The employer's objective is to provide:

GRADE R at Bubesi Junior Secondary School, Matatiele, Alfred Ndzo District, Eastern Cape.

1.2 Overview of the works

Grade R Classroom Block (1 x classroom, 1 x store room, 1 x kitchen overall approximate size 108 square meters). Undercover play area (approximate size 16 square meters). Undercover sand pit (approximately size 12 square meters). VIP toilet block (3 x Pit Toilet) .Site works generally comprising of bulk earthworks, open walkways, concrete aprons, storm water channels, rainwater tanks on bases, 1 x elevated rainwater tank on stand, jungle gym, security fencing all round GRADE R and school perimeter and entrance structure. New building to have full electrical installation

1.3 Location of the works

The designated site to be shown to the contractor is at Bubesi Junior Secondary School, Matatiele, Alfred Ndzo District, Eastern Cape.

Temporary works

To be communicated to the winning bidder before construction commences

2 DRAWINGS

The drawings used for setting up the Bills of Quantities are attached.

- **Architectural drawings**
- **Civil & Structural Engineers Drawings**

Three (3) sets to be provided to the successful Bidder at site hand over

3 PROCUREMENT

3.1 Preferential procurement procedures

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

3.1.1 Requirements for the sourcing and engagement of labour.

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

3.1.1.2 The rate of pay set for this project is as follows:

Description	Daily wage for 8 hour work day (Minimum)	Important Note to Bidders
Unskilled labour	R 185-52	NB: Bidders are to check and verify rates used in the area during compulsory briefing or before submitting bid document.
Semi-skilled labour	R 231-20	
Skilled labour	R 251-76	
Supervisor	R 307-84	

3.1.1.3 Tasks established by the contractor must be such that:

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

3.1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 3.1.1.3.

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

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

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

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

3.1.2 Specific provisions pertaining to SANS 1914-5

3.1.2.1 Definitions

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

3.1.2.2 Contract Participation Goal

3.1.2.2.1 The minimum Contract Participation Goal applicable to the Contract is 30%.

3.1.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes. The Person / days will be calculated in accordance with Addendum F: Contract Person / Days Calculation Format.

3.1.2.3 Terms and conditions for the engagement of targeted labour

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

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

3.1.2.4 Variations to the SANS 1914-5

None

3.1.2.5 Training of targeted labour

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

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

3.1.2.5.3 An allowance equal to 100% of the task rate or daily rate shall be paid by the Contractor to workers who attend training, in terms of 3.1.2.5.

3.1.2.5.4 Records pertaining to the attendance, progress and performance of trainees will be kept by the Contractor and made available to the Employer monthly. These records shall be attached to the monthly progress payment certificates to the Employer.

3.1.2.5.5 The Contractor shall do nothing to dissuade targeted labour from participating in training programmes.

3.2 Subcontracting

3.2.1 Scope of mandatory subcontract work

As per the mandatory sub-contracting clause, the Contractor must not sub-contract more than 30% of work to Domestic Sub-contractors.

The Contractor shall without delay enter into contracts with the Domestic Subcontractors as submitted on the returnable schedule and forward a copy of these agreements to the Principal Agent. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.

The Contractor to take note of item 3.2.2 below

3.2.2 Preferred subcontractors / suppliers

3.2.3 Subcontracting procedures

See items 3.2.1 and 3.2.2 as well as Bid data

3.2.4 Attendance on subcontractors

Attendance to Domestic Sub-contractors as stated above should be priced under the relevant items in the Preliminaries section of the bills of quantities. Attendance to nominated sub-contractors should be priced under the relevant items in the Provisional Sums section of the bills of quantities.

4. MANAGEMENT

4.1 Recording of weather

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

4.2 Unauthorized persons

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

4.3 Management meetings

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

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

4.4 Forms for contract administration

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

4.5 Payment certificates

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

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

4.6 Addenda

- 4.6.1 Occupational Health and Safety Regulations (*ADDENDUM A*)
- 4.6.2 Standard Occupational Health and Safety Specification (*ADDENDUM B*)
- 4.6.3 Environmental Management Plan (*ADDENDUM C*) (will be made available to the successful bidder)
- 4.6.4 Pro-forma contract between Contractor and Worker (*ADDENDUM D*)
- 4.6.5 Pro-forma Attendance Register (*ADDENDUM E*)
- 4.6.6 Contract Person / Days Calculation Format (*ADDENDUM F*)
- 4.6.7 Contractor monthly report format (see 4.4 above) also available in electronic format (*ADDENDUM G*)
- 4.6.8 Guidelines for the implementation of labour-intensive infrastructure projects under the Expanded Public Works Programme (*ADDENDUM H*) (available on the following website www.epwp.gov.za)
- 4.6.9 Drawings (*ADDENDUM I*)
- 4.6.10 IDT Addendum to the JBCC (*ADDENDUM J*)

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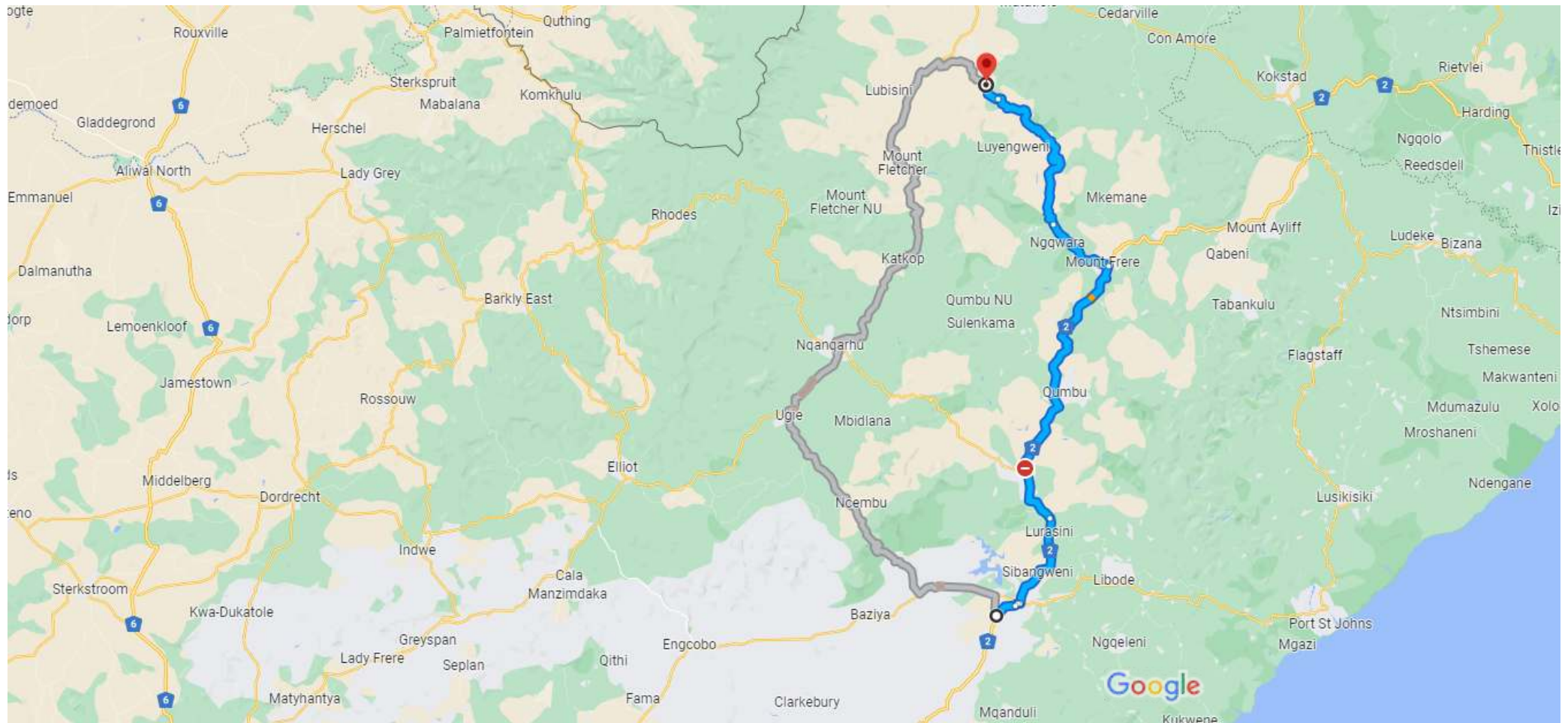
C4 Site Information

SEE ATTACHED SITE MAP



Shell Ultra City - Mthatha, 912, N2, Mthatha, 5100, South Africa to eNdulini, South Africa

Drive 175 km, 3 hr 14 min



Map data ©2023 AfriGIS (Pty) Ltd 10 mi

**via N2****3 hr 14 min**

Fastest route now, avoids road closure on N2

175 km

**via R56****3 hr 29 min**

215 km

Explore eNdulini



Restaurants



Hotels



Gas stations



Parking Lots



More