public works
& infrastructure

Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

TENDER NO.: BL 22/008

PROCUREMENT DOCUMENTS

FOR

BLOEMFONTEIN HIGH COURT: UPGRADING AND RENOVATING OF THE ELECTRICAL SYSTEMS INCLUDING BACK-UP GENERATOR

VOLUME 2 OF 3: RETURNABLE DOCUMENTS

DEPARTMENT OF PUBLIC WORKS
Bloemfontein Regional Office
18 President Brand Street
Private Bag X20605
Bloemfontein
9300

ENQUIRIES
NAME: Mr C. M. Dyantyi
TEL: 051 408 7366
REF: 14/2/1/4/18/6706

NAME OF TENDERER: _____

CIDB NO.: _____

CSD NO.: _____

T2.1 List of Returnable Documents

PA-09 (EC): LIST OF RETURNABLE DOCUMENTS

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator***		
Tender / Quote no:	BL 22/008	**Reference no:**	14/2/1/4/18/6706
Receipt Number:			

1. RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.

Tender document name	Number of pages issued	Returnable document
Form of Offer and Acceptance (DPW-07 EC)	4 Pages	Yes
Declaration of Interest and Tenderer's Past Supply Chain Management Practices (PA-11)	4 Pages	Yes
Resolution of Board of Directors (PA-15.1) *(if applicable)*	1 Page	Yes
Resolution of Board of Directors to enter into Consortia or JV's (PA-15.2) *(if applicable)*	2 Pages	Yes
Special Resolution of Consortia or JV's (PA-15.3) *(if applicable)*	3 Pages	Yes
Preference points claim form in terms of the Preferential Procurement Regulations 2017 (PA – 16)	5 Pages	Yes
Certificate of independent Bid Determination (PA - 29)	4 Pages	Yes
Declaration Certificate for Local Production and Content for designated sectors (PA – 36 and Annexure/s C)	24 Pages	Yes
Fully completed Declaration of Designated Groups for Preferential Procurement (PA 40)	2 Pages	Yes
Registration on National Treasury's Central Supplier Database (CSD).	-	Yes
Particulars of Tenderer's Projects (DPW-09 EC)	2 Pages	Yes
Site Inspection Meeting Certificate (DPW-16 EC) (*if applicable*).	1 Page	Yes
Record of attending compulsory virtual bid clarification / site inspection meeting (if applicable).	1 Page	
Record of Addenda to tender documents (DPW-21 EC)	1 Page	Yes
Site Inspection Meeting Certificate (DPW-16 EC) *(if applicable)*	1 Page	
Proof of 30% Subcontracting participation and related documents in terms of the Preferential Procurement Regulations 2017 (*if applicable).*		

* In compliance with the requirements of the CIDB SFU Annexure G

Tender no: ***BL 22/008***

2. ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES
Note: Failure to submit the applicable documents will result in the Tenderer having to submit same upon request within a stipulated time and if not complied with, will result in the tender offer being disqualified from further consideration. [See also C.2.18 of the Standard Conditions of Tender]

Tender document name	Number of pages issued	Returnable document
Any additional information required to complete a risk assessment *(if applicable)*	-	Yes

3. RETURNABLE DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT
Note: Failure to submit the applicable documents will result in the Tenderer having to submit same upon request within a stipulated time and if not complied with, will result in the tender offer being disqualified from further consideration. [See also C.2.18 of the Standard Conditions of Tender]

Tender document name	Number of pages issued	Returnable document
Schedule of proposed sub-contractors (DPW-15 EC) *(if applicable)*	1 Page	Yes
Particulars of Electrical Contractor (DPW-22 EC) *(if applicable)*	1 Page	Yes
Mechanical / Electrical / Security Work material and equipment schedules *(if applicable)*	Pages	Yes
Schedule for Imported Materials and Equipment (DPW-23 EC) *(if applicable)*	1 Page	Yes

4. OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT
(Insert a tick in the "Returnable document" column to indicate which documents must be returned with the tender)

Note: Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.

Tender document name	Number of pages issued	Returnable document
Priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts)	32 Pages	☒Yes ☐No
Fully priced and completed sectional summary- and final summary pages with the tender.	Pages	☐Yes ☐No
	Pages	☐Yes ☐No
	Pages	☐Yes ☐No
	Pages	☐Yes ☐No

Tender no: ***BL 22/008***

5. ADDITIONAL INFORMATION THAT MAY BE REQUIRED FOR TENDER EVALUATION PURPOSES

Legal Status of Tendering Entity: **If the Tendering Entity is:**	**Documentation to be submitted with the tender, or which may be required during the tender evaluation:**
a. A close corporation, incorporated prior to 1 May 2011 under the Close Corporations Act, 1984 (Act 69 of 1984, as amended)	Copies of the Founding Statement – CK1
b. A profit company duly registered as a private company. [including a profit company that meets the criteria for a private company, whose Memorandum of Incorporation states that the company is a personal liability company in terms of Section 8(2)(c) of the Companies Act, 2008 (Act 71 of 2008, as amended)].	Copies of: i. Certificate of Incorporation – CM1; ii. Shareholding Certificates of all Shareholders of the company, plus a signed statement of the company's Auditor, certifying each Shareholder's ownership / shareholding percentage relative to the total; and/or iii. Memorandum of Incorporation in the case of a personal liability company.
c. A profit company duly registered as a private company in which any, or all, shares are held by one or more other close corporation(s) or company(ies) duly registered as profit or non-profit company(ies).	Copies of documents referred to in a. and/or b. above in respect of all such close corporation(s) and/or company(ies).
d. A profit company duly registered as a public company.	Copy of Certificate of Incorporation – CM1, and a signed statement of the company's Secretary or Auditor confirming that the company is a public company.
e. A non-profit company, incorporated in terms of Section 10 and Schedule 1 of the Companies Act, 2008 (Act 71 of 2008, as amended).	Copies of: I the Founding Statement – CK1; and ii the Memorandum of Incorporation setting out the object of the company, indicating the public benefit, cultural or social activity, or communal or group interest.
f. A natural person, sole proprietor or a Partnership	Copy(ies) of the Identity Document(s) of: i. such natural person/ sole proprietor, or each of the Partners to the Partnership.
g. A Trust	Deed of Trust duly indicating names of the Trustee(s) and Beneficiary (ies) as well as the purpose of the Trust and the mandate of the Trustees.

Signed by the Tenderer:

Name of representative	**Signature**	**Date**

C1.1 Form of Offer and Acceptance

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

DPW-07 (EC): FORM OF OFFER AND ACCEPTANCE

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator***		
Tender / Quotation no:	BL 22/008	**Reference no:**	*14/2/1/4/18/6706*

OFFER

The Employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:
Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator

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

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

THE TOTAL OFFER INCLUSIVE OF ALL APPLICABLE TAXES (All applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies) IS:

Rand (in words):	…… …… ……
Rand in figures:	**R** ……..

The amount in words takes precedence over the amount in figures. The award of the tender may be subjected to further price negotiation with the preferred tenderer(s). The negotiated and agreed price will be considered for acceptance as ***a firm and final offer***.

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.

THIS OFFER IS MADE BY THE FOLLOWING LEGAL ENTITY: (cross out block which is not applicable)

Company or Close Corporation: …… …… And: Whose Registration Number is: …….. And: Whose Income Tax Reference Number is: …… CSD supplier number:……....	**OR**	Natural Person or Partnership: …….. ……..... Whose Identity Number(s) is/are: ……... Whose Income Tax Reference Number is/are: ……... CSD supplier number:……...

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

Tender / Quotation no: BL 22/008

AND WHO IS (if applicable)**:**	
Trading under the name and style of: ……	
AND WHO IS:	
Represented herein, and who is duly authorised to do so, by: Mr/Mrs/Ms: ……... In his/her capacity as: ……	**Note:** **A Resolution / Power of Attorney, signed by all the Directors / Members / Partners of the Legal Entity must accompany this Offer, authorising the Representative to make this offer.**

SIGNED FOR THE TENDERER:

Name of representative	Signature	Date

WITNESSED BY:

Name of witness	Signature	Date

This Offer is in respect of: (Please indicate with an "X" in the appropriate block)

The official documents …… ☐
The official alternative …… ☐
Own alternative (only if documentation makes provision therefore) …… ☐

(N.B.: Separate Offer and Acceptance forms are to be completed for the main and for each alternative offer)

SECURITY OFFERED:

(a) the Tenderer accepts that in respect of contracts up to R1 million, a payment reduction** of 5% of the contact value (excluding VAT) will be applicable and will be deducted by the Employer in terms of the applicable conditions of contract

(b) in respect of contracts above R1 million, the Tenderer offers to provide security as indicated below:

(1) cash deposit of 10 % of the Contract Sum (excluding VAT) **Yes** ☐ **No** ☐

(2) variable construction guarantee of 10 % of the Contract Sum (excluding VAT) **Yes** ☐ **No** ☐

(3) payment reduction of 10% of the value certified in the payment certificate (excluding VAT) **Yes** ☐ **No** ☐

(4) cash deposit of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) **Yes** ☐ **No** ☐

(5) fixed construction guarantee of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) **Yes** ☐ **No** ☐

NB. Guarantees submitted must be issued by either an insurance company duly registered in terms of the Insurance Act [Long-Term Insurance Act, 1998 (Act 52 of 1998) or Short-Term Insurance Act, 1998 (Act 35 of 1998)] or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

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

Tender / Quotation no: BL 22/008

The Tenderer elects as its *domicilium citandi et executandi* in the Republic of South Africa, where any and all legal notices may be served, as (physical address):

……

……

Other Contact Details of the Tenderer are:

Telephone No…… Cellular Phone No. ……

Fax No ……..

Postal address ……

Banker …… Branch……..

Registration No of Tenderer at Department of Labour …..……

CIDB Registration Number: ……...

ACCEPTANCE

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

The terms of the contract are contained in:

Part C1 Agreement 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 the above listed Parts.

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 securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of 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 (5) working days of the date of such receipt notifies the employer in writing of any reason why he/she cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

For the Employer:

Name of signatory	Signature	Date

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

Tender / Quotation no: BL 22/008

Name of Organisation:	Department of Public Works and Infrastructure
Address of Organisation:	

WITNESSED BY:

Name of witness	Signature	Date

Schedule of Deviations

1.1.1. Subject:
Detail:

1.1.2. Subject:
Detail:

1.1.3. Subject:
Detail:

1.1.4. Subject:
Detail:

1.1.5. Subject:
Detail:

1.1.6. Subject:
Detail:

By the duly authorised representatives signing this agreement, the Employer and the Tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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

*Any reference to words “Bid” or “Bidder” herein and/or in any other documentation shall be construed to have the same meaning as the words “Tender” or “Tenderer”.
**Any reference to the words “payment reduction” herein shall be construed to have the same meaning as the word “retention”

C2.2 Bills of Quantities / Lump Sum Document (if a returnable document)

DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

BILLS OF QUANTITIES

Comprising of:

Section 1 - Preliminaries and General

Section 2 - EPWP

Section 3 - Bill of Quantities - Electrical

Section 4: Bill of Quantities - Mechanical

Section 5: Final Summary

public works & infrastructure
Department: Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

BLOEMFONTEIN HIGH COURT MAINTENANCE
ENGINEERING SERVICES

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	PART 1A: PRELIMINARY AND GENERAL				
	The agreement is to be the General Conditions of Contract (GCC 2010) (Second Edition), Published by the SA Institution of Civil Engineering.				
	The preliminaries are to be the Construction and management requirements for works contracts - Part 1: General engineering and construction works (SANS 1921 -1: 2004 Edition 1) prepared by Standards South Africa and shall be deemed to be incorporated herein.				
	Tenderers are referred to the abovementioned documents for the full intent and meaning of each clause thereof (hereinafter referred to by heading and clause number only) for which such allowance must be made as may be considered necessary.				
	Where standard clauses or alternatives are not entirely applicable to this contract such modifications, corrections or supplements as will apply are given under each relevant clause heading.				
	Where any item is not relevant to this specific contract such items is marked N/A (signifying "not applicable").				
	Adjustment of the preliminaries: each item priced, is to be allocated to one or more of the three categories, where "F" denotes a fixed amount (amount not to be varied), "V" denotes an amount variable in proportion to value and "T" denotes an amount in proportion to time.				
	Time (T) related Preliminaries will only be adjusted for omissions or additions, issued by the Employer, or delays caused by the Employer, for which variation and extention of time has been granted.				
	SECTION A: GENERAL CONDITIONS OF CONTRACT				
A1	General (Clause 1)				
	F: …….. V: …….. T: ……..	Item			
A2	Basis of Contract (Clause 2)				
	F: …….. V: …….. T: ……..	Item			
A3	Engineer (Clause 3)				
	F: …….. V: …….. T: ……..	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
A4	Contractor's General Obligation (Clause 4)				
	F: …….. V: …….. T: ……	Item			
A5	Time and Related Matters (Clause 5)				
	F: …….. V: …….. T: ……	Item			
A6	Payment and Related Matters (Clause 6)				
	F: …….. V: …….. T: ……	Item			
A7	Quality and Related Matters (Clause 7)				
	F: …….. V: …….. T: ……	Item			
A8	Risk and Related Matters (Clause 8)				
	F: …….. V: …….. T: ……	Item			
A9	Termination of Contract (Clause 9)				
	F: …….. V: …….. T: ……	Item			
A10	Claims and Disputes (Clause 10)				
	F: …….. V: …….. T: ……	Item			
	SECTION B: SANS 1921-1:2004 (Edition 1):				
	CONSTRUCTION AND MANAGEMENT				
	REQUIREMENTS FOR WORKS CONTRACTS: PART 1				
B1	Scope				
	F: …….. V: …….. T: ……	Item			
B2	Normative references				
	F: …….. V: …….. T: ……	Item			
B3	Definitions				
	F: …….. V: …….. T: ……	Item			
B4	Requirements for construction and management				
	F: …….. V: …….. T: ……	Item			
B4.1	General				
	F: …….. V: …….. T: ……	Item			
B4.2	Responsibilities for design and construction				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
B4.3	Planning, programme and method statements				
	F: …….. V: …….. T: ……	Item			
B4.4	Quality assurance				
	F: …….. V: …….. T: ……	Item			
B4.5	Settling out				
	F: …….. V: …….. T: ……	Item			
B4.6	Management and disposal of water				
	F: …….. V: …….. T: ……	Item			
B4.7	Blasting				
	F: …….. V: …….. T: ……	Item			
B4.8	Works adjacent to services and structures				
	F: …….. V: …….. T: ……	Item			
B4.9	Management of the works and site				
	F: …….. V: …….. T: ……	Item			
B4.10	Earthworks				
	F: …….. V: …….. T: ……	Item			
B4.11	Testing				
	F: …….. V: …….. T: ……	Item			
B4.12	Materials, samples and fabrication drawings				
	F: …….. V: …….. T: ……	Item			
B4.13	Equipment				
	F: …….. V: …….. T: ……	Item			
B4.14	Site establishment				
	F: …….. V: …….. T: ……	Item			
B4.15	Survey control				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
B4.16	Temporary works				
	F: …….. V: …….. T: ……	Item			
B4.17	Existing services				
	F: …….. V: …….. T: ……	Item			
B4.18	Health and safety				
	F: …….. V: …….. T: ……	Item			
B4.19	Environmental requirements				
	F: …….. V: …….. T: ……	Item			
B4.20	Alterations, additions, extentions and modifications to				
	existing works				
	F: …….. V: …….. T: ……	Item			
B4.21	Inspection of adjoining structures, services, buildings				
	and property.				
	F: …….. V: …….. T: ……	Item			
B4.22	Attendance on nominated and selected subcontractors				
	F: …….. V: …….. T: ……	Item			N/A
	SECTION C: SCOPE OF WORK IN ACCORDANCE				
	WITH SANS 10403				
	(The reference to clauses refer to table B.1 of SANS				
	1921-1:2004)				
C1	Cerification by recognised bodies - (Clause 4.4)				
	F: …….. V: …….. T: ……	Item			
C2	Agrèment - (Clause 4.5)				
	F: …….. V: …….. T: ……	Item			
C3	Other services and facilities - (Clause 4.8)				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
C4	Recording of weather - (Clause 5.2)				
	F: …….. V: …….. T: ……	Item			
C5	Management meetings - (Clause 5.3)				
	F: …….. V: …….. T: ……	Item			
C6	Daily records - (Clause 5.6)				
	F: …….. V: …….. T: ……	Item			
C7	Permits - (Clause 5.9)				
	F: …….. V: …….. T: ……	Item			
C8	Proof of compliance with the law - (Clause 5.10)				
	F: …….. V: …….. T: ……	Item			
	SECTION D: SPECIFICATION DATA ASSOCIATED WITH SANS 1921-1:2004 (Table A.1)				
D1	Requirements for drawings, information and calculations for which the contractor is responsible - (Clause 4.1.7)				
	F: …….. V: …….. T: ……	Item			
D2	The planning, programme and method statements- (Clause 4.3)				
	F: …….. V: …….. T: ……	Item			
D3	Samples of materials. Workmanships and finishes - (Clause 4.12.1)				
	F: …….. V: …….. T: ……	Item			
D4	Fabrication drawings that the contractor is to provide and deliver to the employer - (Clause 4.12.2)				
	F: …….. V: …….. T: ……	Item			
D5	Office for the foreman - (Clause 4.14.3)				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
D6	Telephone - (Clause 4.14.3)				
	F: …….. V: …….. T: ……	Item			
D7	Office for inspector of works - (Clause 4.14.3)				
	F: …….. V: …….. T: ……	Item			N/A
D8	Telephone in office for inspector of works -				
	(Clause 4.14.3)				
	F: …….. V: …….. T: ……	Item			N/A
D9	Provision and erection of signboards - (Clause 4.14.6)				
	F: …….. V: …….. T: ……	Item			N/A
D10	Termination, diversion or maintenance of existing				
	services - (Clause 4.17.1)				
	F: …….. V: …….. T: ……	Item			
D11	Services which are known to exist - (Clause 4.17.3)				
	F: …….. V: …….. T: ……	Item			
D12	Detection apparatus - (Clause 4.17.4)				
	F: …….. V: …….. T: ……	Item			
D13	Additional health and safety requirements -				
	(Clause 4.18)				
	F: …….. V: …….. T: ……	Item			
	SECTION E: SPECIFIC PRELIMINARIES				
	(Section E contains specific preliminaries items which				
	apply to this contract except where "N/A" (Not applicable)				
	appears against the item.				
E1	**WORKING OVER THE WEEKEND**				
	Contractor to make allowance to work over the				
	weekend in order to allow for the disconnection of				
	utilities and the connection of the generator. The				
	weekend to be used for disconnection and connection				
	and must be communicated to the Department two				
	weeks in advance.				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E2	**SITE INSTRUCTIONS**				
	Site instructions issued on site are to be recorded in				
	triplicate in a Site Instruction book which is to be m				
	maintained on site by the Contractor				
	F: …….. V: …….. T: ……	Item			
E3	**PLANT RECORD**				
	At every site meeting, the Contractor shall provide the				
	Engineer/Principal agent with a written record, in				
	schedule form, reflecting the number, type and capacity				
	of all plant, excluding hand tools, currently used on the				
	works.				
	F: …….. V: …….. T: ……	Item			
E4	**SITE OFFICE**				
	The Contractor is to allow for the provision and removal				
	of a site office in accordance with the Principal Agent's				
	requirements. To accommodate 6 persons.				
	F: …….. V: …….. T: ……	Item			
E5	**TRADE NAMES**				
	Wherever a Trade Name for any product has been				
	described in the Bill of Quantities, the Bidder'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 the submission of the Bids.				
	F: …….. V: …….. T: ……	Item			
E6	**INACCURATE AND DEFECTIVE WORK EXECUTED**				
	UNDER PREVIOUS CONTRACT				
	The contractor shall, after taking possession of the site				
	and before commencing the work, check all levels, liners,				
	profiles and the like and satisfy himself as to the				
	dimensional accuracy of all work executed under the				
	previous contract which may affect his work.				
	Should any inaccurate or detecfive work be found, the				
	contractor shall immediately notify the principal agent				
	in writing requesting his instructions with regard thereto				
	and afford every facility to those rectifying such				
	inaccurate or defective work.				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E7	**VIEWING THE SITE IN SECURITY AREAS**				
	If the site is situated in a security area and the bidder				
	must arrange with the Authorities to obtain permission				
	to enter the site for Bidding purposes.				
	F: …….. V: …….. T: ……	Item			
E8	**COMMENCEMENT OF WORKS IN SECURITY AREAS**				
	If the works falls within a security area, the contractor				
	must arrange with the Authorities and give the				
	necessary notices before commencement of the works.				
	Should the contractor fail to make such arrangements,				
	admission to the site may be refused and any aditional				
	costs will be for the contractor's account.				
	F: …….. V: …….. T: ……	Item			
E9	**ENTRANCE PERMITS TO SECURITY AREAS**				
	If 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 ans instructions which be issued from the				
	time to time regarding the protection of persons and				
	property under the control of the Authority.				
	F: …….. V: …….. T: ……	Item			
E10	**PROHIBITION ON TAKING 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 photographs, except when				
	authorised thereto by or on behalf of the Minister				
	The same prohibition is also applicable to all				
	Correctional Institutions in terms of article 44.1 of the				
	Correctional Services Act 8 of 1959.				
	F: …….. V: …….. T: ……	Item			
E11	**TOILET FACILITIES**				
	Allow for the supply and removal of portable toilet				
	facilities. The contractor is to maintain the cleanliness				
	of the facilities throughout the contract period. The				
	contractor must provide enough toilets for his/her entire				
	workforce.				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E12	**MANAGEMENT OF WATER**				
	Water for Construction puposes must be obtained from				
	alternative water sources (i.e. supply other than water				
	that is produced and distributed by a regulated water				
	service authority from a licensed water treatment works				
	for human consumption), e.g. dams, rivers, boreholes,				
	springs, rainwater harvesting, recycled sewerage water,				
	etc. The alternative water source shall not be of an				
	inferior quality/ standard than that required for				
	construction purposes. The client reserves the right				
	through his agents to test such supplies or request				
	certificates confirming the grade and nature of the water				
	supply. Relevant knowledge of the respective area will				
	be an advantage.				
	F: ……... V: …….. T: ……	Item			
E13	**OCCUPATIONAL HEALTH AND SAFETY ACT &**				
	CONSTRUCTION REGULATIONS				
	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 Bill of Quantities. Provision for pricing				
	thereof is made under items E12.1 to E12.15 hereafter				
	and it is explicity 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				
	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 6 of Section 1: Preliminaries				
	(Part 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.				
	All references hereafter are to Regulations of the				
	Construction Regulations, 2003 issued under the				
	Occupational Health and Safety Act, 1993 (Act No 85 of				
	1993).				
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
	The contractor shall, in submitting his bid, demonstrate				
	that he has made provision for the cost of compliance				
	with the specified health and safety requirements, the Act				
	and the Construction Regulations.				
	F: …….. V: …….. T: ……	Item			
E13.1	**NOTIFICATION OF CONSTRUCTION WORK**				
	(Construction Regulations 3)				
	The contractor shall, before commencing work, notify the				
	Department of Labour of the intend construction work in				
	terms o Regulation 3. The Contractor shall submit the				
	notification in writing, on the appropriate form, prior to				
	commencement of work.				
	F: …….. V: …….. T: ……	Item			
E13.2	**HEALTH AND SAFETY PLAN (Construction**				
	regulations 5.4)				
	The Contractor shall provide and demonstrate to the				
	Principal Agent a suitable and sufficiently documented				
	health and safety plan based on the Act, Construction				
	Regulations and the health and safety specification,				
	which shall be applied from the date of commencement				
	of and for the duration of the construction work. The				
	Contractor shall ensure that a copy of the health and				
	safety plan is available on request to an employee,				
	inspector, sub contractor or principal agent all in terms				
	of Regulation 5.				
	F: …….. V: …….. T: ……	Item			
E13.3	**REGISTRATION WITH THE COMPENSATION FUND**				
	(Construction Regulations 5.3 f)				
	The Contractor shall provide proof of his registration and				
	good standing with the Compensation Fund or a licensed				
	compensation insurer prior to the commencement of				
	work				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E13.4	**HEALTH AND SAFETY FILE (Construction**				
	Regulation 5.7)				
	The contractor shall ensure that a health and safety file,				
	which shall include all documentation required in terms				
	of health ans safety specification, the Act and the				
	Construction Regulations, is opened and kept on site				
	and made available to the Principal Agent or inspector				
	upon request. Upon completion of the works, the				
	contractor shall hand over a consolidated health and				
	safety file to the principal agent.				
	F: …….. V: …….. T: ……	Item			
E13.5	**SUPERVISION OF CONSTRUCTION WORK (Safety**				
	officier) (Construction Regulation 6)				
	The Contractor shall appoint a full-time competent				
	employee in writing as the construction supervisor, with				
	the duty of supervising the construction work.				
	The Contractor shall appoint a full-time or part-time				
	construction safety officier in writing to assist in the				
	control of all safety related aspects on the site. Such				
	appointments are required to ensure that at all times the				
	requirements of the Act and Construction Regulations				
	are adhered to. Refer to Regulation 6.				
	F: …….. V: …….. T: ……	Item			
E13.6	**RISK ASSESSMENT AND SAFETY POLICY**				
	(Construction Regulation 7)				
	Before commencing work the Contractor shall cause a				
	risk assessment to be performed by a competent person				
	appointed in writing and the risk assessment shall form				
	part of the health and safety plan. A copy of the risk				
	assessment shall be available on site at all times for				
	inspection.				
	The Contractor shall at all time carry out the works in a				
	manner to avoid the risk of bodily harm to persons or				
	risk of damage to any property. He shall take all				
	precuations regarding training of employees in any				
	hazards and the related work procedures, health and				
	safety induction training of employees, visitors or any				
	other persons entering the site and provide personal				
	protective equipment to all employees and visitors to				
	site which are necessary and adequate to eliminate any				
	conditions which contribute to the risk of injury to				
	persons or damage to property in terms of Regulation 7.				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E13.7	**SIGNIFICANT HAZARD IDENTIFICATION RISK**				
	ASSESSMENT PREPARED BY THE DESIGN				
	CONSULTANTS				
	The Contractor shall allow for additional finanical				
	provision, if any , to take the necessary precauations				
	regarding the significant hazards and risks identified				
	and assessed by the design consultants.				
	F: ……... V: …….. T: ……	Item			N/A
E13.8	**ADDITIONAL FINANICAL PROVISION**				
	The Contractor shall allow for additional finanicial				
	provision, if any, to comply with the requirements of the				
	Occupational Health and Safety Act (Act No 85 of 1993)				
	and the Construction Regulations issued there under				
	which have not been specifically elsewhere.				
	F: ……... V: …….. T: ……	Item			
E13.9	**FALL PROTECTION PLAN (Construction Regulation**				
	8)				
	The Contractor shall, before commencing any				
	construction work submit a fall protection plan identified				
	all steps to be taken in order to ensure the continued				
	adherence to the fall protection plan and shall include				
	a risk assessment of all work carried out from a relevant				
	position. The fall protection plan shall form part of the				
	health and safety plan and file.				
	F: ……... V: …….. T: ……	Item			
E13.10	**PHYSICAL AND PSYCHOLOGICAL FITNESS**				
	(Construction Regulation 8.2 (b))				
	The Contractor and sub-contractor shall before				
	commencing any construction work submit proof of his				
	employees that shall carried out work from an elevated				
	position their physical and psychological fitness and				
	shall be recorded in the health and safety file.				
	F: ……... V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E13.11	**CONSTRUCTION VEHICLES AND MOBILE PLANT**				
	(Construction Regulations 21)				
	The Contractor and sub-contractors shall ensure that all				
	operated workers received training and been certified				
	competent to operate such vehicles, and are physical				
	and psychological fit to operate such construction				
	vehicles and mobile plants and shall be recorded in the				
	health and safety file.				
	F: ……... V: …….. T: ……	Item			
E13.12	**TRAINING (Construction Regulation 8 (c))**				
	The Contractor and sub-contractor shall, before				
	commencing any construction work, submit his training				
	program of all his employees. This program shall form				
	part of the health and safety plan.				
	F: ……... V: …….. T: ……	Item			
E13.13	**DEMOLITION WORK (Construction Regulations 12)**				
	The Contractor shall, before any demolition work shall				
	be carried out, submit all methods of demolition to be				
	used. This method shall form part of the health and				
	safety plan and file.				
	F: ……... V: …….. T: ……	Item			
E13.14	**REMOVAL AND DISPOSAL OF ASBESTOS**				
	MATERIAL (Asbestos Regulation)				
	The principle contractor shall appoint a contractor that				
	is registered with the Department of Labour as an AIA.				
	The contractor must allow for:				
	NOTIFICATION OF ASBESTOS PROCESSING				
	PERSONAL PROTECTIVE EQUIPMENT				
	PACKAGING AND TRANSPORT AND STORAGE TO				
	DISPOSAL SITE				
	DEMOLITION WORK				
	LABELLING, INFORMATION, ETC.				
	F: ……... V: …….. T: ……	Item			N/A
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E13.15	**RISK COMPLIANCE AREAS (As Outlined**				
	In "Volume Three": Covid-19 Guidelines for				
	Management of Risk on Construction Sites and				
	Covid-19 addendum (Item 1-12) attached to				
	Health and Safety specification)				
	· Disinfection of the workplace at regular intervals as				
	outlined within the Guidelines "Annexure A"				
	Workplace Preparation Procedure;				
	· Ensure Staff and Security Staff have PPEs (i.e.				
	masks,gloves, sanitisers, etc.)				
	· Installed thermal scanners to check temperature of				
	all staff and visitors. Ensure training of Security Staff				
	for use of thermal scanners. Register to be				
	implemented for staff and visitors to site with				
	identification criteria "ID number, Name, Age,				
	Health Status and Contact details";				
	· Isolation room identified/constructed on site;				
	· Ensure sanitisers and soap are available in locker				
	rooms for staff;				
	· Ensure staff or visitors are wearing masks before				
	entering;				
	· Ensure social distance on site;				
	· Notification about the restriction of the number of				
	people allowed on site at one time;				
	· Disinfection of rooms for meetings and strictly				
	keeping to social distancing and wearing masks;				
	· Plans to rotate work force on percentage allowable				
	on site to comply with regulations;				
	· Permits issued by Authorising Authority for Work				
	Force and vehicles for Cross Provincial and District				
	Boarders				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E14	**IMPLEMENTATION OF LABOUR-INTENSIVE**				
	INFRASTRUCTURE PROJECTS UNDER THE				
	EXPANDED PUBLIC WORKS PROGRAMME (EPWP)				
	The contractor shall comply with all the requirements of				
	the "Code of Good Practice for Employment and				
	Conditions of Work for Special Public Works				
	Programmes" issued in terms of the "Basic Conditions				
	of Employment Act, 1997 (Act No 75 of 1997)" and the				
	related "Ministerial Determination", for the employment				
	of locally employed temporary workers on a labour				
	intensive infrastructure project under the Expanded				
	Public Works Programme (EPWP)				
	The contractor shall maintain daily records with regard				
	to the workers employed and shall, on a monthly basis,				
	submit a report (Contract, ID Copy, Attendance register,				
	Proof of payment) to the principal agent in the				
	prescribed format. Compulsory indicators such as the				
	project budget, actual project expenditure, number of job				
	opportunities created, demographic characteristics of				
	workers employed, minimum daily wage rate, number of				
	person-days of employment created and number of				
	training person-days, shall be included in said report, all				
	as defined in the "Guidelines for the Implementation of				
	Labour-Intensive Infrastructure Projects under the				
	Expanded Public Works Programme (EPWP)"				
	Provision for pricing of compliance with the				
	aforementioned is made under this clause and it is				
	explicitly pointed out that all that all requirements in				
	respect of the aforementioned are deemed to be priced				
	hereunder and no additional claims in this regard shall				
	be entertained				
	F: ……... V: ……... T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E14.1	**DECLARATION - EPWP PROGRAMME**				
	The contractor must adhere to all rules, regulations and				
	requirements regarding the EPWP programme,				
	specifically but not limited to the following:				
	1. Labour intensive construction methods (LIC)				
	1.1 Comply to implementation of LIC BOQ items				
	specified elsewhere in the tender documents				
	2. Recruitment and placement of EPWP NYS (Not				
	Applicable)				
	2.1 Recruitment, placement and exposure training of				
	25 (Twenty five) participants				
	2.2 Comply to EPWP BOQ specifications and code of				
	good practice				
	3. Recruitment and placement of local labourers				
	3.1 Recruitment and placement of minimum 5 (Five)				
	local labourers				
	3.2 Comply with applicable wage order/determination				
	or agreement, in terms of labour relations act or				
	wage act				
	4. Comply with EPWP monthly reporting				
	requirements				
	Monthly prepare and submit below EPWP reports				
	attached to monthly payments certificate				
	4.1 All employees and EPWP participants contracts				
	4.2 All employees and EPWP participants certified SA				
	ID copies				
	4.3 All employees and EPWP attendance register				
	4.4 All employees and EPWP proof of payment				
	4.5 EPWP reports populated on standard templates				
	5. Penalties for non compliance				
	Acknowledge non compliance of R3000-00 (Three				
	thousand rand) per month per participant				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E15	**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.				
	Provision for pricing of HIV/AIDS awareness is made				
	under items E14.1 to E14.5 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				
E15.1	**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				
	F: ……... V: …….. T: ……	Item			
E15.2	**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 multimedia techniques,				
	including follow-up courses, making available all tuition				
	material and performing assessment procedures, all in				
	accordance with the HIV/AIDS Specification				
	F: ……... V: …….. T: ……	Item			
	CARRIED FORWARD				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD				
E15.3	**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				
	F: …….. V: …….. T: ……	Item			
E15.4	**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				
	F: …….. V: …….. T: ……	Item			
E15.5	**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				
	F: …….. V: …….. T: ……	Item			
E16	**CONSTRUCTION VEHICLES FOR DELIVERY OF**				
	EQUIPMENT				
	Allow for vehicles such as truck cranes, forklifts, etc for				
	the moving of the generator into place and delivery of				
	other necessary equipment for the project.				
	F: …….. V: …….. T: ……	Item			
E17	**ALTERNATE POWER SUPPLIES FOR**				
	CONSTRUCTION				
	Allow for the supply of portable generators and/or other				
	alternate power supplies for construction equipment in				
	the event of power failure on the premesis.				
	F: …….. V: …….. T: ……	Item			
	CARRIED FORWARD TO SECTION 4 SUMMARY				**R 2 267 009,07**

public works & infrastructure
Department: Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

BLOEMFONTEIN HIGH COURT MAINTENANCE
ENGINEERING SERVICES

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
200	**SECTION NO** 2				
	BILL NO				
	EMPLOYMENT AND TRAINING OF LABOUR ON THE EPWP-NYS INFRASTRUCTURE PROJECTS				
	PREAMBLES				
	Tenderers are advised to study the Additional Specification SL: Employment and Training of Labour on the Expanded Public Works Programme (EPWP) Infrastructure Projects: National Youth Service, as bound elsewhere in the Bills of Quantities, and then price this Bill accordingly.				
200,01	**TRAINING OF YOUTH WORKERS (TARGET: 16 YOUTH WORKERS)**				
	Skills development and technical training:				
200.01.01	Skills development and technical training for youth workers for average of 66 days per youth worker (ref .SL 11.01.01)	-	Prov	Sum	384 000,00
200.01.02	Payment Reduction due to not meeting the target as in SL 11.01	Youth-worker	-2 500		Not priced
200.01.03	Profit and attendance (on item 1)	10%	384 000		38 400,00
200,02	**EMPLOYMENT OF YOUTH WORKERS**				
200.02.01	Employment of youth workers (ref. SL 11.02.01)	-	PC	Sum	364 320,00
200.02.02	Profit and attendance (ref. SL 11.02.02)	10%	364 320		36 432,00
200,03	**PROVISION OF EPWP DESIGNED OVERALLS AND HARD HATS TO YOUTH WORKERS**				
200.03.01	Supply 2 x EPWP branded overalls, 1 x pair of safety boots and 1 x EPWP branded hard hat to youth workers (ref. SL	-	PC	Sum	19 200,00
200.03.02	Profit and attendance (ref. SL 11.03.02)	10%	19 200		1 920,00
200,04	**PROVISION OF SMALL TOOLS FOR YOUTH WORKERS**				
200.04.01	Provide all youth workers with prescribed tools. (ref. SL 11.04.01)	-	PC	Sum	28 800,00
200.04.02	Profit and attendance (ref. SL 11.04.02)	10%	28 800		2 880,00
200,05	**Liaison with Service Provider** (ref. SL 11.05)	hours	N/A		
200,06	**TRAVELLING DURING TRAINING**				
200.06.01	Travelling (based on R30.00 return trip per day per youth worker)	-	PC	Sum	0,00
200,06,02	Profit and attendance (ref. SL 11.06.02)	10%	N/A		0,00
200,07	**MEDICAL TESTS**				
200.07.01	Medical fitness tests (ref. SL 11.07.01)	-	PC	Sum	9 600,00
200.07.02	Profit and attendance (ref. SL 11.07.02)	10%	R 9 600		960,00
Carried to Final Summary				**R**	886 512,00

TENDER NUMBER:

Section 3 - ELECTRICAL INSTALLATION FOR BLOEMFONTEIN HIGH COURT

ITEM NO	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
3,1	**Low Voltage cables**					
	Supply, deliver and install PVC/SWA Cu low-voltage cable and BCEW:					
3,1,1	**1 x 70mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT Board (Normal) to ATS Panel, complete with Terminations, glands and shrouts	m	27			
3,1,2	**1 x 35mm Bare Copper Earth Wire** from Main LT Board (Normal) to ATS Panel, complete with Terminations, glands and shrouts	m	27			
3,1,3	**1 x 50mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from ATS Panel to Main LT Board (Essential) , complete with Terminations, glands and shrouts	m	27			
3,1,4	**1 x 25mm Bare Copper Earth Wire** from ATS Panel to Main LT Board (Essential), complete with Terminations, glands and shrouts	m	27			
3,1,5	**3 x 240mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Transformer to Main LT Board, complete with Terminations, glands and shrouts	m	15			
3,1,6	**3 x 70mm Bare Copper Earth Wire** from Transformer to Main LT Board, complete with Terminations, glands and shrouts	m	15			
3,1,7	**1 x 50mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Generator to ATS Panel, complete with Terminations, glands and shrouts	m	8			
3,1,8	**1 x 25mm Bare Copper Earth Wire** from Generator to ATS Panel, complete with Terminations, glands and shrouts	m	8			
3,1,9	**1 x 16mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB K1 (Essential), complete with Terminations, glands and shrouts	m	82			
3,1,10	**1 x 16mm Bare Copper Earth Wire** from Main LT (Essential) to DB K1 (Essential), complete with Terminations, glands and shrouts	m	82			
3,1,11	**1 x 16mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB K2 (Essential), complete with Terminations, glands and shrouts	m	100			
3,1,12	**1 x 16mm Bare Copper Earth Wire** from Main LT (Essential) to DB K2 (Essential), complete with Terminations, glands and shrouts	m	100			
3,1,13	**1 x 6mm 2core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB LG2 (Essential), complete with Terminations, glands and shrouts	m	24			
3,1,14	**1 x 6mm Bare Copper Earth Wire** from Main LT (Essential) to DB LG2 (Essential), complete with Terminations, glands and shrouts	m	24			
3,1,15	**1 x 10mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB G1-OLD (Essential), complete with Terminations, glands and shrouts	m	30			
3,1,16	**1 x 10mm Bare Copper Earth Wire** from Main LT (Essential) to DB G1-OLD (Essential), complete with Terminations, glands and shrouts	m	30			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - ELECTRICAL INSTALLATION FOR BLOEMFONTEIN HIGH COURT

ITEM NO	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
3,1,17	**1 x 16mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB G2-OLD (Essential), complete with Terminations, glands and shrouts	m	100			
3,1,18	**1 x 16mm Bare Copper Earth Wire** from Main LT (Essential) to DB G2-OLD (Essential), complete with Terminations, glands and shrouts	m	100			
3,1,19	**1 x 25mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB G3 (Essential), complete with Terminations, glands and shrouts	m	101			
3,1,20	**1 x 16mm Bare Copper Earth Wire** from Main LT (Essential) to DB G3 (Essential), complete with Terminations, glands and shrouts	m	101			
3,1,21	**1 x 10mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB G4 (Essential), complete with Terminations, glands and shrouts	m	26			
3,1,22	**1 x 10mm Bare Copper Earth Wire** from Main LT (Essential) to DB G4 (Essential), complete with Terminations, glands and shrouts	m	26			
3,1,23	**1 x 10mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 1/3 (Essential), complete with Terminations, glands and shrouts	m	37			
3,1,24	**1 x 10mm Bare Copper Earth Wire** from Main LT (Essential) to DB 1/3 (Essential), complete with Terminations, glands and shrouts	m	37			
3,1,25	**1 x 10mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 1.1 (Essential), complete with Terminations, glands and shrouts	m	30			
3,1,26	**1 x 10mm Bare Copper Earth Wire** from Main LT (Essential) to DB 1.1 (Essential), complete with Terminations, glands and shrouts	m	30			
3,1,27	**1 x 16mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 2.1 (NEW) (Essential), complete with Terminations, glands and shrouts	m	54			
3,1,28	**1 x 16mm Bare Copper Earth Wire** from Main LT (Essential) to DB 2.1 (NEW) (Essential), complete with Terminations, glands and shrouts	m	54			
3,1,29	**1 x 10mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 2.1 (OLD) (Essential), complete with Terminations, glands and shrouts	m	37			
3,1,30	**1 x 10mm Bare Copper Earth Wire** from Main LT (Essential) to DB 2.1 (OLD) (Essential), complete with Terminations, glands and shrouts	m	37			
3,1,31	**1 x 25 mm 4core** Cu. PVC . SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB A-F2 (Essential), complete with Terminations, glands and shrouts	m	120			
3,1,32	**1 x 16 mm Bare Copper Earth Wire** from Main LT (Essential) to DB A-F2 (Essential), complete with Terminations, glands and shrouts	m	120			
3,2	**Distribution boards**					
	Perform maintenance and retrofitting on the Distribution Panels; New MCCBs, face plates, labelling etc.					
3,2,1	DB BLOCK A - Refurbish as per SLD	ea	1			
3,2,2	DB BLOCK B - Refurbish as per SLD	ea	1			
3,2,3	DB BLOCK C - Refurbish as per SLD	ea	1			
3,2,4	DB C-G1 - Refurbish as per SLD	ea	1			
3,2,5	DB C-G2 - Refurbish as per SLD	ea	1			
3,2,6	DB A6 - Refutbish as per SLD	ea	1			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - ELECTRICAL INSTALLATION FOR BLOEMFONTEIN HIGH COURT

ITEM NO	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
3,2,7	SUB DB E - Refurbish as per SLD	ea	1			
3,2,8	DB SERVER - Refurbish as per SLD	ea	1			
3,2,9	DB SECURITY - Refurbish as per SLD	ea	1			
3,2,10	DB M2 - Refurbish as per SLD	ea	1			
	Supply and deliver distribution boards as specified complete with equipment as per SLD, incl. factory inspection (HxWxD)					
3,2,11	DB MAIN LV - Floor Standing (1900 x 600 x 400)mm	ea	1			
3,2,12	DB M1 - Surface Mounted (700x600x250)mm	ea	1			
3,2,13	DB A3 - Wall Recessed (800x700x200)mm	ea	1			
3,2,14	DB M3 - Surface Mounted (800x700x250)mm	ea	1			
3,2,15	DB A4 - Surface Mounted (800x700x250)mm	ea	1			
3,2,16	DB B1 - Surface Mounted (800x700x250)mm	ea	1			
3,2,17	DB HVAC - Surface Mounted (600x600x250)mm	ea	1			
3,2,18	DB M4 - Surface Mounted (900x700x250)mm	ea	1			
3,2,19	DB A5 - Wall Recessed (900x700x200)mm	ea	1			
3,2,20	DB M5 - Surface Mounted (900x700x250)mm	ea	1			
3,2,21	DB B2 - Surface Mounted (800x700x250)mm	ea	1			
3,2,22	DB A2 - Surface Mounted (600x600x200)mm	ea	1			
3,2,23	DB A1 - Surface Mounted (600x600x200)mm	ea	1			
3,2,24	DB B3 - Surface Mounted (900x700x250)mm	ea	1			
	General work on electrical installation and Distribution Panels					
3,2,25	Equipment removal, stripping and cleaning, Find and isolate all unused supplies	sum	1			
3,2,26	Final phase balancing on DB's	ea	38			
3,2,27	Labelling of cables,socket outlets and distribution boards	sum	1			
3,2,28	As-built drawings for existing and new electrical installation	sum	1			
3,2,29	Certificate of compliance for main LV panel	ea	1			
3,2,30	Certificate of compliance for sub main LV panels	ea	3			
3,2,31	Certificates of compliance for all distribution panels	ea	21			
3,3	**Lighting installation**					
	Supply, deliver and install light switches and occupancy sensors					
3,3,1	16 A (4x2) Wall 1 Way with metal face plate	ea	50			
3,3,2	16A 24Hr/7Day digital timer din rail	ea	20			
3,3,3	Photocell complete installed inside IP55 enclosure	ea	5			
3,3,4	16A Rotary Type switch, 2 pole, weatherproof enclosure	ea	4			
	Supply, deliver and install retrofitt lamps, fittings and accessories as per the lighting schedule					
3,3,5	Type H - 13W Bulkhead LED 4000K, Surface Mounted, Opal diffuser, 274x274mm, 2000 Lm, IP65	ea	154			
3,3,6	Type D - 70W LED Panel 4000K, Surface Mounted with surface bracket, Opal diffuser, 1200x600mm, 7332Lm (With integrated backup battery for emergency lighting)	ea	90			
3,3,7	Type D1 - 70W LED Panel 4000K, Surface Mounted with surface bracket, Opal diffuser, 1200x600mm, 7332Lm	ea	301			
3,3,8	Type G - 46W Vapourproof LED 4000K, Complete with accessories, 1500mm, 7332Lm	ea	144			
3,3,9	Type J - 70W LED Flood 4000K, Surface Monted, U-Bracket, 10235Lm, IP66	ea	5			
3,3,10	Type A - 55W Rough Guard LED 4000K, Opaque diffuser, Back Entry, 7560Lm, 740mm IP65	ea	4			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - ELECTRICAL INSTALLATION FOR BLOEMFONTEIN HIGH COURT

ITEM NO	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
3,3,11	Type A1 - 9W Rough Guard LED 4000K, Opaque diffuser, Back Entry, 1180Lm, 240mm IP65 with Nigh Light	ea	8			
3,3,12	12W LED Lamp, 4000k (Cool White) E27 Socket		120			
3,3,13	5W GUI10 LED Lamps, 3000K (Warm White) - Pack of 10	ea	7			
3,4	**Power outlets and Isolators**					
	Supply, deliver and install flush mounted socket outlets					
3,4,1	16A 3-pin double switched (4x4) socket outlet - White metal face plate	ea	15			
3,4,2	16A socket outlets mounted on power skirting (normal 3-pin, SANS 164-1 with Euro socket, SANS 164-2)	ea	130			
3,4,3	3m utility pole; 57mm diameter, complete with covers, base plate, ceiling flange and jack assembly and outlet kits for normal, dedicated, telephone and data outlets	ea	10			
3,4,4	16A 3-pin dedicated single switched socket (4x2) outlet - Red metal face plate	ea	89			
	Supply and deliver surface mounted isolators					
3,4,5	30A Single Phase, 3 Pole isolator, Weather Proof, Surface Mount	ea	74			
3,4,6	20A Three Phase, 4 Pole isolator, Weather Proof, Surface Mount	ea	2			
3,4,7	60A Three Phase, 4 Pole isolator, Weather Proof, Surface Mount	ea	8			
3,5	**Wiring; wire ways and accessories**					
	Supply and deliver PVC insulated stranded copper conductors					
3,5,1	2,5mm²	m	23500			
3,5,2	4mm²	m	18050			
3,5,3	6mm² 4 Core PVC SWA 600/1000V	m	255			
3,5,4	2,5mm² 7 Core cable	m	10			
	Supply and deliver insulated stranded copper earth conductors					
3,5,5	1.5mm²	m	23500			
3,5,6	2.5mm²	m	18050			
	Supply cable wiremash / trunking supports complete with all accessories					
3,5,7	300mm wide heavy duty cable tray, welded wire mesh complete with joiner sets and accessories	m	180			
3,5,8	300mm wide medium duty cable tray, welded wire mesh complete with joiner sets and accessories	m	741			
3,5,9	P9810 (127x100mm) wiring duct, complete with cover and accessories	m	300			
3,5,10	Power skirting with cover (2 - compartment) N8/P801	m	780			
3,6	**Earthing and Bonding**					
3,6,1	Measuring of earth resistance by an earthing specialist and issueing of a report	sum	1			
	Supply and Delivery Air Termination Rods (ATR)					
3.6.2	25mm2 Al wire	m	500			
3.6.3	Conductor holders and clips	ea	250			
3.6.4	1.5m ATR	ea	6			
3.6.5	ATR bracket	ea	6			
3.6.6	MV Clamps - To connect to Rod	ea	40			
3.6.7	MV Clamps - To connect to Ring	ea	40			
	Supply and Delivery Down-Conductor					
3.6.8	25mm2 Al wire	m	210			
3.6.9	Conductor holders and clips	ea	200			
3.6.10	Earth disconnection and test point	ea	14			
3.6.11	16mm2 Insulated Copper Conductor Green/Yellow	m	40			
3.6.12	Earth rods 1.5m	ea	14			
3.6.13	Coupler	ea	14			
3.6.14	Earth rod clamp	ea	14			
3.6.15	Anti Corrosive Tape	ea	10			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - ELECTRICAL INSTALLATION FOR BLOEMFONTEIN HIGH COURT

ITEM NO	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
	Cad Welding					
3.6.16	cad weld insulated copper conductor and earth rod	ea	14			
	Bonding					
3.6.17	Provide geyser, piping, taps, floor grid, sanitary ware and waste pipe earthing and bonding in ablutions and kitchens	sum	1			
	Documentation					
3.6.18	Certificates of compliance for the complete earthing and bonding	sum	1			
3,7	**Backup Generator Installation**					
3,7,1	500kVA Prime Power Diesel Generator, 3 phase, sound attenuation and weatherproof canopy (72dB @ 7m), automatic voltage regulation, integrated base mounted 24hour tank at 75% load. Auotomatic mains failure controller with 800A, 15kA ATS.	sum	1			
3,7,2	Decommissioning of existing 25kVA generator and delivering to storage/appointed location for re-use.	sum	1			
3,7,3	Test results; submission as part of O&M manual(Generator)	sum	1			
3,7,4	12 months equipment and installation guarantee period for electrical and installation	sum	1			
3,8	**Main Supply Capacity Upgrade**					
3,8,1	Non-refundable detail design fee	ea	1			
3,8,2	Connection Fee (750kVA), i.e. 250kVA additional	sum	1			
3,8,3	Maximum Network Capacity Fee	ea	250			
	Section 3 - ELECTRICAL INSTALLATION TOTAL CARRIED FORWARD TO SUMMARY PAGE:					

TENDER NUMBER:

Section 4 - MECHANICAL INSTALLATIONS FOR BLOEMFONTEIN HIGH COURT

ITEM No	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
4,1	**EXISTING SYSTEM**					
	Decommission and remove from site existing Chilled Water systems, complete with all piping, insulation, cables, controllers, trays, brackets, trunking etc:					
4,1,1	Mcquay chillers	No	3			
4,1,2	Chilled water pumps	No	3			
4,1,3	Water tanks and frames	No	1			
4,1,4	Air handling units - for 7 court rooms (court A to G)	No	7			
4,1,5	Floor standing Fan Coil Units (FCUs) - blocks A & B	No	134			
4,1,6	Redundant water chilled piping and valves - (from plant room on the roof to the AHUs in the court rooms and FCUs in the offices	item	1			
4,1,7	Redundant chilled water piping where it is restricting the installation of new hide away units in the court rooms	No	7			
4,1,8	Redundant control panels and cables – roof (confirm with electrical engineer)	item	1			
4,1,9	Redundant control panels and cables - plant rooms (confirm with electrical engineer)	item	1			
4,1,10	Saving on scrap value of equipment	item	1			
	Inspect, test, basic repairs and provide written report on existing HVAC systems as follows:					
4,1,11	Split air conditioning units - library & block B	No	10			
4,1,12	Fresh air ducting and its damper - for 7 court rooms	No	7			
4,1,13	Supply conditioned-air ducting together with supply diffusers and grilles - for 7 court rooms	No	7			
	Service/repair/replace allowances for existing HVAC system repairs – To be instructed by engineer after reading the inspection and test reports:					
4,1,14	Service split air conditioning units - library & block B	No	10			
4,1,15	Service fresh air ducting and its damper - for 7 court rooms	No	7			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - MECHANICAL INSTALLATIONS FOR BLOEMFONTEIN HIGH COURT

ITEM No	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
4,1,16	Service conditioned-air ducting together with supply diffusers and grilles - for 7 court rooms	No	7			
4,1,17	Replace split air conditioning units - library & block B		10			
4,1,18	Replace supply air grilles - 6 in each of the 7 court rooms	No	42			
4,1,19	Install wired remote controllers for existing air-cons	No	10			
4,1,20	Replace split unit pipe insulation and waterproofing	No	10			
4,1,21	Allowance for further repairs/replacements	item	1			
	Other:					
4,1,22	Repairs to ceilings where supply grilles are removed - to match existing ceilings in 7 court rooms	No	7			
4,2	**AIR CONDITIONING SYSTEMS**					
	Supply, deliver and install 3-pipe heat exchanger VRF condenser units complete with hail guards, Anti-vibration mounting (AVMs) and support frames as per specifications:					
4,2,1	40kw VRF heat recovery outdoor units for system OD-1	item	5			
	Supply, deliver and install VRF ceiling indoor cassette units, all as per specifications:					
4,2,2	CU-01: SC = 1.43 kW, SH = 1.32kW	No	4			
4,2,3	CU-02: SC = 1.82kW, SH = 1.68kW	No	6			
4,2,4	CU-03: SC = 2.34kW, SH = 2.16kW	No	4			
4,2,5	CU-04: SC = 2.93kW, SH = 2.7Kw	No	1			
4,2,6	CU-05: SC = 3.64kW, SH = 3.36kW	No	6			
4,2,7	CU-06: SC = 4.62kW, SH = 4.26kW	No	4			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - MECHANICAL INSTALLATIONS FOR BLOEMFONTEIN HIGH COURT

ITEM No	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
	Supply, deliver and install VRF floor standing fan coil units, all as per specifications:					
4,2,8	FU-01: SC = 1.43 kW, SH = 1.32kW	No	4			
4,2,9	FU -02: SC = 1.82kW, SH = 1.68kW	No	6			
4,2,10	FU -03: SC = 2.34kW, SH = 2.16kW	No	4			
4,2,11	FU -04: SC = 2.93kW, SH = 2.7Kw	No	1			
4,2,12	FU -05: SC = 3.64kW, SH = 3.36kW	No	6			
4,2,13	FU -06: SC = 4.62kW, SH = 4.26kW	No	4			
	Supply, deliver and install VRF refrigerant piping systems complete with all pipes, insulation, fittings,junctions, BS boxes, trunking, hangers and special items required for each complete installation:					
4,2,14	System OD-1	No	5			
	Supply, deliver and install all uPVC condensate piping systems for each VRF system, including brackets, rodding eyes and terminating in existing drain points:					
4,2,15	System OD-1	No	5			
	Supply, deliver and install all VRF control equipment complete with cables, conduit, trunking and cable trays as specified:					
4,2,16	Hard-wired remote controllers	No	134			
4,2,17	Intelligent controller/BMS unit complete with lockable weather proof panel	lot	1			
4,2,18	Shielded communication cables for each system	No	5			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - MECHANICAL INSTALLATIONS FOR BLOEMFONTEIN HIGH COURT

ITEM No	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
	Commission each completed VRF system, including Nitrogen purging, charging with refrigerant and sign-off by equipment supplier, all as per specifications:					
4,2,19	System OD-1	No	5			
	Supply, deliver and install inverter heat pump split air conditioning units complete with brackets, hangers and anti-vibration mounting (AVMs), all as per specifications:					
4,2,20	AC-1: 30kw Hide Away indoor unit plus its outdoor unit	No	4			
4,2,21	AC-2: 49,8kW Hide Away indoor plus its outdoor unit	No	3			
4,2,22	SU-01: 3,5kw cassette indoor unit plus its outdoor unit	No	4			
4,2,23	SU-02: 7kw cassette indoor unit plus its outdoor unit	No	3			
4,2,24	SU-03: 10,5kw cassette indoor unit plus its outdoor unit	No	1			
	Supply, deliver and install refrigerant piping systems for split units c/w all pipes, insulation, fittings, trays, brackets and trunking for a complete installation all as per specifications:					
4,2,25	For AC-1	No	4			
4,2,26	For AC-2	No	3			
4,2,27	For SU-01	No	4			
4,2,28	For SU-02	No	3			
4,2,29	For SU-03	No	1			
	Supply, deliver and install all uPVC condensate drain piping for split units, p-traps, rodding eyes, brackets, hangers etc for complete installation and terminating in building drain points or drip cups:					
4,2,30	For AC-1	No	4			
4,2,31	For AC-2	No	3			
4,2,32	For SU-01	No	4			
4,2,33	For SU-02	No	3			
4,2,34	For SU-03	No	1			
	Supply, deliver and install hard wired controls and cabling for proper functioning of systems:					
4,2,35	For AC-1	No	4			
3,2,36	For AC-2	No	3			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - MECHANICAL INSTALLATIONS FOR BLOEMFONTEIN HIGH COURT

ITEM No	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
	Supply, deliver and install wireless remote controls					
4,2,37	For SU-01	No	4			
4,2,38	For SU-02	No	3			
4,2,39	For SU-03	No	1			
	Commission each completed split unit system, including Nitrogen purging, charging with refrigerant, all as per specifications:					
4,2,40	AC-1:	No	4			
4,2,41	AC-2:	No	3			
4,2,42	SU-01:	No	4			
4,2,43	SU-02:	No	3			
4,2,44	SU-03:	No	1			
	Supply, deliver and install galvanised sheet metal ducting with insulation and cladding including, ancillaries, seals, brackets, stop ends etc. all as per drawings and specified:					
4,2,45	Connections for a hide-away indoor units and the existing ducting	No	7			
	Supply, deliver and install hail guards for split units					
4,2,46	For AC 1 outdoor units	No	4			
4,2,47	For AC-2 outdoor units	No	3			
4,2,48	For SU-01 outdoor units	No	4			
4,2,49	For SU-02 outdoor units	No	3			
4,2,50	For SU-03 outdoor units	No	1			
	Supply, deliver and install ducting systems for hide away units in 7 plant rooms					
4,2,51	Plenum box for 30kw hide away unit (1500x400x800) – dimensions to be confirmed on site	No	4			
4,2,52	400x400 galvanised sheet metal ducting without insulation (5m per plant room x 4 plant rooms for 30kw hide away units)	m	20			
4,2,53	400x400 Balancing dampers (2 per plant room x 4 plant rooms for 30kw hide away)	No	8			
4,2,54	430x900 to 400x400 Transformation (return grill to return duct) per plant room for 30kw hide away unit	No	4			
4,2,55	Plenum box for 49.8kw hide away unit (2000x500x800) – dimensions to be confirmed on site	No	3			
4,2,56	400x400 galvanised sheet metal ducting without insulation (2m per plant room x 3 plant rooms for 30kw hide away units)	m	6			
	CARRIED FORWARD					

TENDER NUMBER:

Section 3 - MECHANICAL INSTALLATIONS FOR BLOEMFONTEIN HIGH COURT

ITEM No	DESCRIPTION	UNIT	QTY	SUPPLY RATE	INSTALL RATE	TOTAL
	BROUGHT FORWARD					
4,2,57	400x400 Balancing dampers (1 per plant room x 3 plant rooms for 49.8kw hide away)	No	3			
4,2,58	600x400 galvanised sheet metal ducting without insulation (3m per plant room x 3 plant rooms for 49.8kw hide away units)	m	9			
4,2,59	900x400 Balancing dampers (1 per plant room x 3 plant rooms for 49.8kw hide away)	No	3			
4,2,60	450x900 to 600x400 Transformation (return grill to return duct) per plant room for 30kw hide away unit	No	3			
	Other:					
4,2,61	Core drilling or making of hole's for A/C piping and cables, complete with sealing	lot	1			
4,2,62	Build a horizontal support for placing more outdoor units on the existing scaffolding near block	No	1			
	MISCELLANEOUS					
4,2,63	Cranage, rigging and all lifting	item	1			
4,2,64	Approved scaffolding and erection	item	1			
4,2,65	Transport and delivery of equipment	item	1			
4,2,66	Waterproof duct penetrations into roof shafts	No	7			
	Section 4 - MECHANICAL INSTALLATIONS TOTAL CARRIED FORWARD TO SUMMARY PAGE:					

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

BLOEMFONTEIN HIGH COURT MAINTENANCE
ENGINEERING SERVICES

SUMMARY OF BILL OF QUANTITIES

SECTION	DESCRIPTION	TOTALS AS PER BILL SECTIONS
1	Preliminaries & General	
2	EPWP	R 886 512,00
3	Electrical Installation	
4	Mechanical Installation	
	TOTAL:	
	TOTAL TENDERED VALUE EXCLUDING. VAT.	
	15% VAT	
	TOTAL TENDERED VALUE INCLUDING VAT. CARRIED TO FORM AND OFFER AND ACCEPTANCE DPW-07(EC)	

T2.2 Returnable Documents required for tender evaluation purposes

PA-11: 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 Tender 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 interest (1) 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 consortium2 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

2 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.

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

This form has been aligned with SBD4

PA-15.1: RESOLUTION OF BOARD OF DIRECTORS

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

_____

(*Legally correct full name and registration number, if applicable, of the Enterprise)*

Held at _____ (*place)*

on _____ *(date)*

RESOLVED that:

1. The Enterprise submits a Bid / Tender to the Department of Public Works in respect of the following project:

   _____

   (*Project description as per Bid / Tender Document)*

   Bid / Tender Number: _____ *(Bid / Tender Number as per Bid / Tender Document)*

2. *Mr/Mrs/Ms: _____

   in *his/her Capacity as: _____ *(Position in the Enterprise)*

   and who will sign as follows: _____

   be, and is hereby, authorised to sign the Bid / Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid / Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid / Tender to the Enterprise mentioned above.

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
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11			
12			
13			
14			
15			
16			

17			
18			
19			
20			

The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed.

Note:

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must, where possible, be signed by <u>all</u> the Directors / Members / Partners of the Bidding Enterprise.*
3. *In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).*
4. *Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).*
5. *Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.*

ENTERPRISE STAMP

PA-15.2: RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

_____

_____

(*Legally correct full name and registration number, if applicable, of the Enterprise)*

Held at _____ (*place)*

on _____ *(date)*

RESOLVED that:

1. The Enterprise submits a Bid /Tender, in consortium/Joint Venture with the following Enterprises:

   _____

   _____

   (List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Consortium/Joint Venture)

   to the Department of Public Works in respect of the following project:

   _____

   _____

   (*Project description as per Bid /Tender Document)*

   Bid / Tender Number: _____ (*Bid / Tender Number as per Bid / Tender Document)*

2. *Mr/Mrs/Ms: _____

   in *his/her Capacity as: _____ *(Position in the Enterprise)*

   and who will sign as follows: _____

   be, and is hereby, authorised to sign a consortium/joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the consortium/joint venture, in respect of the project described under item 1 above.

3. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfilment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Department in respect of the project described under item 1 above.

4. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Department in respect of the project under item 1 above:

   Physical address: _____

   _____

   _____

   _____ (code)

Postal Address: _____

_____

_____

_____ (code)

Telephone number: _____

Fax number: _____

	Name	Capacity	Signature
1			
2			
3			
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12			
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15			

The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed

Note:

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must, where possible, be signed by <u>all</u> the Directors / Members / Partners of the Bidding Enterprise.*
3. *In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).*
4. *Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).*
5. *Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.*

ENTERPRISE STAMP

PA-15.3: SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the duly authorised representatives of the following legal entities who have entered into a consortium/joint venture to jointly bid for the project mentioned below: (*legally correct full names and registration numbers, if applicable, of the Enterprises forming a Consortium/Joint Venture)*

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

_____

Held at _____ (*place)*

on _____ *(date)*

RESOLVED that:

RESOLVED that:

A. The above-mentioned Enterprises submit a Bid in Consortium/Joint Venture to the Department of Public Works in respect of the following project:

_____

_____

(*Project description as per Bid /Tender Document)*

Bid / Tender Number: _____ (*Bid / Tender Number as per Bid /Tender Document)*

B. *Mr/Mrs/Ms: _____

in *his/her Capacity as: _____*(Position in the Enterprise)*

and who will sign as follows: _____

be, and is hereby, authorised to sign the Bid, and any and all other documents and/or correspondence in connection with and relating to the Bid, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid to the Enterprises in Consortium/Joint Venture mentioned above.

C. The Enterprises constituting the Consortium/Joint Venture, notwithstanding its composition, shall conduct all business under the name and style of:

_____

D. The Enterprises to the Consortium/Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Consortium/Joint Venture deriving from, and in any way connected with, the Contract entered into with the Department in respect of the project described under item A above.

E. Any of the Enterprises to the Consortium/Joint Venture intending to terminate the consortium/joint venture agreement, for whatever reason, shall give the Department 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises shall remain jointly and severally liable to the Department for the due fulfilment of the obligations of the Consortium/Joint Venture as mentioned under item D above.

F. No Enterprise to the Consortium/Joint Venture shall, without the prior written consent of the other Enterprises to the Consortium/Joint Venture and of the Department, cede any of its rights or assign any of its obligations under the consortium/joint venture agreement in relation to the Contract with the Department referred to herein.

G. The Enterprises choose as the *domicilium citandi et executandi* of the Consortium/Joint Venture for all purposes arising from the consortium/joint venture agreement and the Contract with the Department in respect of the project under item A above:

Physical address: _____

_____

_____

_____ (Postal code)_____

Postal Address: _____

_____

_____

_____(Postal code)_____

Telephone number: _____

Fax number: _____

PA-15.3: Special Resolution of Consortia or Joint Ventures

	Name	Capacity	Signature
1			
2			
3			
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11			
12			
13			
14			
15			

The bidding enterprise hereby absolves the Department of Public Works & Infrastructure from any liability whatsoever that may arise as a result of this document being signed.

Note:

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must be signed by <u>all</u> the Duly Authorised Representatives of the Legal Entities to the consortium/joint venture submitting this tender, as named in item 2 of Resolution PA-15.2.*
3. *Should the number of the Duly Authorised Representatives of the Legal Entities joining forces in this tender exceed the space available above, additional names, capacity and signatures must be supplied on a separate page.*
4. *Resolution PA-15.2, duly completed and signed, from the separate Enterprises who participate in this consortium/joint venture, must be attached to this Special Resolution (PA-15.3).*

public works
& infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

DPW-16 (EC): SITE INSPECTION MEETING CERTIFICATE

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including BAck-up Generator***		
Tender no:	*BL 22/008*	**Reference no:**	*14/2/1/4/18/6706*
Closing date:	*20 September 2022*		

This is to certify that I, _____representing _____in the company of _____ visited the site on: ***2022/09/08***

I have made myself familiar with all local conditions likely to influence the work and the cost thereof. I further certify that I am satisfied with the description of the work and explanations given at the site inspection meeting and that I understand perfectly the work to be done, as specified and implied, in the execution of this contract.

Name of Tenderer	Signature	Date

Camagu Dyantyi		
Name of DPW Representative	Signature	Date

PA16: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

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

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

---

1. GENERAL CONDITIONS

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

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

1.2. The value of this bid is estimated to ***Not Exceed*** R50 000 000 (all applicable taxes included) and therefore the…***80/20***……system shall be applicable.

1.3. Preference points for this bid shall be awarded for:

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

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

		POINTS
1.3.1.1	**PRICE**	***80***
1.3.1.2	**B-BBEE STATUS LEVEL OF CONTRIBUTION**	***20***
	Total points for Price and B-BBEE must not exceed	**100**

1.4. Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5. An Exempted Micro Enterprise (EME) is only required to obtain a sworn affidavit or a certificate issued by Companies and intellectual property Commission (CIPC) confirming their annual turnover of R10 Million or less and level of black ownership to claim points.

1.6. Qualifying Small Enterprise (QSE) is only required to obtain a sworn affidavit or a certificate issued by Companies and intellectual property Commission (CIPC) confirming their annual turnover of R10 Million or less and level of black ownership to claim points.

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

1.8 CERTIFICATES ISSUED BY IRBA AND ACCOUNTING OFFICER HAVE BEEN DISCONTINUED; HOWEVER VALID CERTIFICATES ALREADY ISSUED BEFORE 01 JANUARY 2017 MAY BE USED UNTIL THEY PHASE OUT COMPLETELY BY DECEMBER 2017

2. DEFINITIONS

(a) **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

(b) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

(c) "**B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

(d) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;

(e) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(f) **"comparative price"** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;

(g) "consortium or joint venture" 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;

(h) **"contract"** means the agreement that results from the acceptance of a bid by an organ of state;

(i) "EME" means an Exempted Micro Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(j) **"Firm price"** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

(k) **"functionality"** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;

(l) **"non-firm prices"** means all prices other than "firm" prices;

(m) **"person"** includes a juristic person;

(n) **"QSE"** means a Qualifying Small Enterprise as defines by Codes of Good Practice under

section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(o) **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;

(p) ***"sub-contract"*** *means the primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;*

(q) **"total revenue"** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;

(r) **"trust"** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and

(s) **"trustee"** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

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

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

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

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

3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.

3.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

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

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

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

5. Points awarded for B-BBEE Status Level of Contribution

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

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

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

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

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

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

6. BID DECLARATION

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

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

7.1 B-BBEE Status Level of Contribution: ……. = ……(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or Sworn Affidavit for EME's and QSE's.

8 SUB-CONTRACTING (relates to 5.5)

8.1 Will any portion of the contract be sub-contracted? YES / NO (delete which is not applicable)

8.1.1 If yes, indicate:

(i) what percentage of the contract will be subcontracted? .....……..…%

(ii) the name of the sub-contractor? ……..……..

(iii) the B-BBEE status level of the sub-contractor? ……..

(iv) whether the sub-contractor is an EME/ a QSE YES / NO (delete which is not applicable)

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

9 DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of company/firm ....

9.2 VAT registration number ……..

9.3 Company registration number ……. :

9.4 TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

…….. .....

…… .....

…….. ..... ….

9.6 COMPANY CLASSIFICATION

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

[TICK APPLICABLE BOX]

9.7 Total number of years the company/firm has been in business? ……

9.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate/ Sworn Affidavit, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

(i) The information furnished is true and correct;
(ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.
(iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
(iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

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

WITNESSES:

1. ……

2. ……

……

SIGNATURE(S) OF BIDDER(S)

DATE:…….. ADDRESS:……...

……..……..…

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

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

DPW-09 (EC): PARTICULARS OF TENDERER'S PROJECTS

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator***		
Tender / quotation no:	BL 22/008	**Closing date:**	20 September 2022
Advertising date:	26 August 2022	**Validity period:**	84 days

1. PARTICULARS OF THE TENDERER'S CURRENT AND PREVIOUS COMMITMENTS

1.1. Current projects

	Projects currently engaged in	Name of Employer or Representative of Employer	Contact tel. no.	Contract sum	Contractual commence-ment date	Contractual completion date	Current percentage progress
1							
2							
3							
4							
5							
6							
7							
8							

Tender no:

1.2. Completed projects

Projects completed in the previous 5 (five) years		Name of Employer or Representative of Employer	Contact tel. no.	Contract sum	Contractual commence-ment date	Contractual completion date	Date of Certificate of Practical Completion
1							
2							
3							
4							
5							
6							
7							
8							
9							

Name of Tenderer	Signature	Date

PA-36: 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 tenders with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Where necessary, for tenders referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.

1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

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

Where
x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) 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 at no cost.

1.6. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation;

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

Description of services, works or goods	Stipulated minimum threshold
Electrical cables	90%
Steel products	100%

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

(***Tick applicable box***)

YES		NO	

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

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

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

Currency	**Rates of exchange**
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

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

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

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. ...BL 22/008.....

ISSUED BY: (Procurement Authority / Name of Institution):
.....NDPWI.....
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.thedti.gov.za/industrial_development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, …..... (full names), do hereby declare, in my capacity as …… ……..
of .....(name of bidder entity), the following:

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

(b) I have satisfied myself that:

(i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 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 3.1 above and the information contained in Declaration D and E.

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

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

SIGNATURE:_____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Electrical Products				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	90%				

Note: **VAT to be excluded from all calculations**

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
item 3,1,1 pg 21	1 x 70mm 4core Cu. SWA PVC 600/1000V feeder cable from Main LT Board (Normal) to ATS Panel, complete with Terminations, glands and shrouts							27m			
item 3,1,2 pg 21	1 x 35mm Bare Copper Earth Wire from Main LT Board (Normal) to ATS Panel, complete with Terminations, glands and shrouts							27m			
item 3,1,3 pg 21	1 x 50mm 4core Cu. SWA. PVC 600/1000V feeder cable from ATS Panel to Main LT Board (Essential), complete with Terminations, glands and shrouts							27m			
item 3,1,4 pg 21	1 x 25mm Bare Copper Earth Wire from ATS Panel to Main LT Board (Essential), copper with Terminations, glands and shrouts							27m			
item 3,1,5 pg 21	3 x 240mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Transformer to Main LT							15m			
item 3,1,6 pg 21	3 x 70mm Bare Copper Earth Wire from Transformer to Main LT Board, complete with Terminations, glands and shrouts							15m			
item 3,1,7 pg 21	1 x 50mm 4core Cu. PVC. SWA> PVC 600/1000V feeder cable from Generator to ATS Panel, complete with Terminations, gl;ands and shrouts							8m			

(C20) **Total tender value**

(C21) **Total Exempt imported content**

(C22) Total **Tender value net of exempt imported content**

(C23) **Total Imported content**

(C24) **Total local content**

(C25) **Average local content % of tender**

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Electrical Products
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*

Calculation of imported content | Summary

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
	`										

Calculation of imported content | Summary

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
`											

Calculation of imported content | Summary

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

Calculation of foreign currency payments

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Electrical Products
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Electrical Products				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	90%				

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
item 3,1,8 pg 21	1 x 25mm Bare Copper Earth Wire form Generator to ATS Panel, complete with Terminations, glands and shrouts							8m			
item 3,1,9 pg 21	1 x 16mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB K1 (Essential), complete with Terminations, glands and shrouts							82m			
item 3,1,10 pg 21	1 x 16mm Bare Copper Earth Wire form Main LT (Essential) to DB K1 (Essential), complete with Terminations, glands and shrouts							82m			
item 3,1,11 pg 21	1 x 16mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB K2 (Essential), complete with Terminations, glands and shrouts							100m			
item 3,1,12 pg 21	1 x 16mm Bare Copper Earth Wire form Main LT (Essential) to DB K2 (Essential), complete with Terminations, glands and shrouts							100m			
item 3,1,13 pg 21	1 x 6mm 2core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential), complete with Terminations, glands and shrouts							24m			
item 3,1,14 pg 21	1 x 6mm Bare Copper Earth Wire from Main LT (Essential) to DB LG2 (Essential), complete with Terminations, glands and shrouts							24m			

(C20) **Total tender value**	
(C21) **Total Exempt imported content**	
(C22) Total **Tender value net of exempt imported content**	
(C23) **Total Imported content**	
(C24) **Total local content**	
(C25) **Average local content % of tender**	

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Electrical Products
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*

Calculation of imported content | Summary

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
	`										

Calculation of imported content | Summary

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
`											

Calculation of imported content | Summary

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

Calculation of foreign currency payments

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Electrical Products
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Electrical Products				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	90%				

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
item 3,1,15 pg 21	1 x 10mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB G1-OLD (Essential), complete with Terminations, glands and shrouts							30m			
item 3,1,16 pg 21	1 x 10mm Bare Copper Earth Wire from Main LT (Essential) to DB G1-OLD (Essential), complete with Terminations, glands and shrouts							30m			
item 3,1,17 pg 22	1 x 16mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB G2-OLD (Essential), complete with Terminations, glands and shrouts							100m			
item 3,1,18 pg 22	1 x 16mm Bare Copper Earth Wire from Main LT (Essential) to DB G2-OLD (Essential), complete with Terminations, glands and shrouts							100m			
item 3,1,19 pg 22	1 x 16mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB K2 (Essential), complete with Terminations, glands and shrouts							101m			
item 3,1,20 pg 22	1 x 6mm Bare Copper Earth Wire from Main LT (Essential), to DB G3 (Essential), complete with Terminations, glands and shrouts							101m			
item 3,1,21 pg 22	1 x 10mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB G4 (Essential), complete with Terminations, glands and shrouts							26m			

(C20) **Total tender value**	
(C21) **Total Exempt imported content**	
(C22) Total **Tender value net of exempt imported content**	
(C23) **Total Imported content**	
(C24) **Total local content**	
(C25) **Average local content % of tender**	

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Electrical Products
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*

Calculation of imported content | Summary

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
	`										

Calculation of imported content | Summary

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
`											

Calculation of imported content | Summary

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

Calculation of foreign currency payments

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Electrical Products
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Electrical Products				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	90%				

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
item 3,1,22 pg 22	1 x 10mm Bare Copper Earth Wire from Main LT (Essential) to DB G4 (Essential), complete with Terminations, glands and shrouts							26m			
item 3,1,23 pg 22	1 x 10mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 1/3 (Essential), complete with Terminations, glands and shrouts							37m			
item 3,1,24 pg 22	1 x 10mm Bare Copper Earth Wire from Main LT (Essential) to DB 1/3 (Essential), complete with Terminations, glands and shrouts							37m			
item 3,1,25 pg 22	1 x 10mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 1.1 (Essential), complete with Terminations, glands and shrouts							30m			
item 3,1,26 pg 22	1 x 10mm Bare Copper Earth Wire from Main LT (Essential) to DB 1.1 (Essential), complete with Terminations, glands and shrouts							30m			
item 3,1,27 pg 22	1 x 16mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 2.1 (NEW) (Essential), complete with Terminations, glands and shrouts							54m			
item 3,1,28 pg 22	1 x 16mm Bare Copper Earth Wire from Main LT (Essential) to DB 2.1 (NEW) (Essential), complete with Terminations, glands and shrouts							54m			

(C20) **Total tender value**	
(C21) **Total Exempt imported content**	
(C22) Total **Tender value net of exempt imported content**	
(C23) **Total Imported content**	
(C24) **Total local content**	
(C25) **Average local content % of tender**	

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Electrical Products
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*

Calculation of imported content | Summary

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
	`										

Calculation of imported content | Summary

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
`											

Calculation of imported content | Summary

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

Calculation of foreign currency payments

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Electrical Products
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Electrical Products				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	90%				

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
item 3,1,29 pg 22	1 x 10mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB 2.1 (OLD) (Essential), complete with Terminations, glands and shrouts							37m			
item 3,1,30 pg 22	1 x 10mm Bare Copper Earth Wire from Main LT (Essential) to DB 2.1 (OLD) (Essential), complete with Terminations, glands and shrouts							37m			
item 3,1,31 pg 22	1 x 25mm 4core Cu. PVC. SWA. PVC 600/1000V feeder cable from Main LT (Essential) to DB A-F2 (Essential), complete with Terminations, glands and shrouts							120m			
item 3,1,32 pg 22	1 x 16mm Bare Copper Earth Wire from Main LT (Essential) to DB A-F2 (Essential), complete with Terminations, glands and shrouts							120m			
item 3,5,1 pg 24	Supply and deliver PVC insulated stranded copper conductors 2,5mm2							23500m			
item 3,5,2 pg 24	Supply and deliver PVC insulated stranded copper conductors 4mm2							18050m			
item 3,5,3 pg 24	Supply and deliver PVC insulated stranded copper conductors 6mm2 4 Core PVC SWA 600/1000V							255m			
item 3,5,4 pg 24	Supply and deliver PVC insulated stranded copper conductors 2,5mm2 7 Core cable							10m			

(C20) **Total tender value**	
(C21) **Total Exempt imported content**	
(C22) Total **Tender value net of exempt imported content**	
(C23) **Total Imported content**	
(C24) **Total local content**	
(C25) **Average local content % of tender**	

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Electrical Products
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*

Calculation of imported content | Summary

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
	`										

Calculation of imported content | Summary

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
`											

Calculation of imported content | Summary

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

Calculation of foreign currency payments

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Electrical Products
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Electrical Products				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	90%				

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
item 3,5,5 pg 24	Supply and deliver insulated stranded copper earth conductors 1.5mm2							23 500m			
item 3,5,6 pg 24	Supply and deliver insulated stranded copper earth conductors 2.5mm2							18 050m			
item 3,6,11 pg 24	Supply and Delivery Down-Conductor 16mm2 Insulated Copper Conductor Green/Yellow							40m			
item 4,2,18 pg 28	Supply, deliver and install all VRF control equipment complete with cables, conduit, trunking and cable trays as specified: Shielded communication cables for each							5			

(C20) **Total tender value**	
(C21) **Total Exempt imported content**	
(C22) Total **Tender value net of exempt imported content**	
(C23) **Total Imported content**	
(C24) **Total local content**	
(C25) **Average local content % of tender**	

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Electrical Products
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*

Calculation of imported content | Summary

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
	`										

Calculation of imported content | Summary

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender 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)*
`											

Calculation of imported content | Summary

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

Calculation of foreign currency payments

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Electrical Products
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Steel				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	100%				

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
item 3,5,5 pg 24	Supply cable wiremash / trunking supports complete with all accessories 300mm wide heavy duty cable tray, welded wire mesh complete with joiner sets and accessories.							180m			
item 3,5,6 pg 24	Supply cable wiremash / trunking supports complete with all accessories 300mm wide medium duty cable tray, welded wire mesh complete with joiner sets and accessories.							741m			
item 3,5,7 pg 24	Supply cable wiremash / trunking supports complete with all accessories P8910 (127 x 100mm) wiring duct, complete with cover and accessories.							300m			
item 3,5,8 pg 24	Supply cable wiremash / trunking supports complete with all accessories Power skirting with cover (2 - compartment) N8/P801.							780m			
item 4,2,52 pg 30	400 x 400 galvanised sheet metal ducting without insulation (5m per plant room x 4 plant rooms for 30kw hide away units).							20m			
item 4,2,54 pg 30	430 x 900 to 400 x 400 Transformation (return grill to return duct) per plant room for 30kw hide away units.							4			
item 4,2,55 pg 30	Plenum box for 49,8kw hide away unit (200 x 500 x 800) dimensions to be confirmed on site							3			
item 4,2,56 pg 30	400 x 400 galvanised sheet metal ducting without insulation (2m per plant room x 3 plant rooms for 30kw hide away units).							6m			

(C20) **Total tender value**

(C21) **Total Exempt imported content**

(C22) Total **Tender value net of exempt imported content**

(C23) **Total Imported content**

(C24) **Total local content**

(C25) **Average local content % of tender**

Signature of tenderer from Annex B

Date:

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Steel
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Summary: Tender Qty	Exempted imported value
(D7)	*(D8)*	*(D9)*	*(D10)*	*(D11)*	*(D12)*	*(D13)*	*(D14)*	*(D15)*	*(D16)*	*(D17)*	*(D18)*

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

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

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Summary: Quantity imported	Total imported value
(D33)	*(D34)*	*(D35)*	*(D36)*	*(D37)*	*(D38)*	*(D39)*	*(D40)*	*(D41)*	*(D42)*	*(D43)*	*(D44)*
`											

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Calculation of foreign currency payments: Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Steel
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Annex C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**	BL 22/008				
(C2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-Up Generator				
(C3)	**Designated product(s)**	Steel				
(C4)	**Tender Authority:**	Dept of Public Works & Infrastructure				
(C5)	**Tendering Entity name:**					
(C6)	**Tender Exchange Rate:**	Pula		EU		GBP
(C7)	**Specified local content %**	100%				

Note: **VAT to be excluded from all calculations**

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Tender Qty**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
item 4,2,58 pg 31	600 x 400 galvanised sheet metal ducting without insulation (3m per plant room x 3 plant rooms for 49,8kw hide away units).							9m			

(C20)	**Total tender value**	
(C21)	**Total Exempt imported content**	
(C22) Total	**Tender value net of exempt imported content**	
(C23)	**Total Imported content**	
(C24)	**Total local content**	
(C25)	**Average local content % of tender**	

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	BL 22/008
(D2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(D3)	**Designated Products:**	Steel
(D4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Summary: Tender Qty	Exempted imported value
(D7)	*(D8)*	*(D9)*	*(D10)*	*(D11)*	*(D12)*	*(D13)*	*(D14)*	*(D15)*	*(D16)*	*(D17)*	*(D18)*

(D19) **Total exempt imported value**

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

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

(D32) **Total imported value by tenderer**

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

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Summary: Quantity imported	Total imported value
(D33)	*(D34)*	*(D35)*	*(D36)*	*(D37)*	*(D38)*	*(D39)*	*(D40)*	*(D41)*	*(D42)*	*(D43)*	*(D44)*
`											

(D45) **Total imported value by 3rd party**

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Calculation of foreign currency payments: Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*	*(D51)*

(D52) **Total of foreign currency payments declared by tenderer and/or 3rd party**

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

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	BL 22/008
(E2)	**Tender description:**	Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator
(E3)	**Designated products:**	Steel
(E4)	**Tender Authority:**	Dept of Public Works & Infrastructure
(E5)	**Tendering 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)**	

(E10) **Manpower costs** (Tenderer's manpower cost)

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

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

(E13) **Total local content**

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

the dti
Department:
Trade and Industry
REPUBLIC OF SOUTH AFRICA

Private Bag X84, PRETORIA, 0001, **the dti** Campus, 77 Meintjies Street, Sunnyside, 0002, Tel: (012) 394 0000
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Guidance Document for the Calculation of Local Content

1. DEFINITIONS

Unless explicitly provided in this guideline, the definitions given in SATS 1286:2011 apply.

2. GENERAL

2.1. Introduction

This guideline provides tenderers with a detailed description of how to calculate local content of products (goods, services and works) by components/material/services and enables them to keep an updated record for verification requirements as per the SATS 1286:2011 Annexure A and B.

The guideline consists of two parts, namely:

- a written guideline; and
- three declarations that must be completed:
  - Declaration C: “Local Content Declaration – Summary Schedule” (see Annexure C);
  - Declaration D: “Imported Content Declaration – Supporting Schedule to Annex C” (see Annexure D); and
  - Declaration E: “Local Content Declaration – Supporting Schedule to Annex C” (see Annexure E).

The guidelines and declarations should be used by tenderers when preparing a tender. A tenderer must complete Declarations D and E, and consolidate the information on Declaration C.

Annexure C must be submitted with the tender by the closing date and time as determined by the Tender Authority. The Tender Authority reserves the right to request that Declarations D and E also be submitted.

If the tender is successful, the tenderer must continuously update Declarations C, D and E with actual values for the duration of the contract.

NOTE:

Annexure A is a note to the purchaser in SATS 1286:2011; and
Annexure B is the Local Content Declaration IN SATS 1286:2011.

2.2. What is local content?

According to SATS 1286:2011, the local content of a product is the tender price less the value of imported content, expressed as a percentage. It is, therefore, necessary to first compute the imported value of a product to determine the local content of a product.

2.3. Categories: Imported and Local Content

The tenderer must differentiate between imported content and local content.

Imported content of a product by components/material/services is separated into two categories, namely:

- products imported directly by the tenderer; and
- products imported by a third party and supplied to the tenderer.

2.3.1. Imported Content

Identify the imported content, if any, by value for products by component/material/services. In the case of components/materials/services sourced from a South African manufacturer, agent, supplier or subcontractor (i.e. third party), obtain that information and Declaration D from the third party.

Calculate the imported content of components/materials/services to be used in the manufacture of the total quantity of the products for which the tender is to be submitted.

As stated in clause 3.2.4 of SATS 1286:2011: “If information on the origin of components, parts or materials is not available, it will be deemed to be imported content.”

2.3.1.1. Imported directly by the tenderer:

When the tenderer import products directly, the onus is on the tenderer to provide evidence of any components/materials/services that were procured from a non-domestic source. The evidence should be verifiable and pertain to the tender as a whole. Typical evidence will include commercial invoices, bills of entry, etc.

When the tenderer procures imported services such as project management, design, testing, marketing, etc and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

2.3.1.2. Imported by a third party and supplied to the tenderer:

When the tenderer supplies components/material/services that are imported by any third party (for example, a domestic manufacturer, agent, supplier or subcontractor in the supply chain), the onus is on the tenderer to obtain verifiable evidence from the third party.

The tenderer must obtain Declaration D from all third parties for the related tender. The third party must be requested by the tenderer to continuously update Declaration D. Typical evidence of imported content will include commercial invoices, bills of entry etc.

When a third party procures imported services such as project management, design, testing, marketing etc. and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

2.3.1.3. Exempt Imported Content:

Exemptions, if any, are granted by the Department of Trade and Industry (**the dti**). Evidence of the exemptions must be provided and included in Annexure D.

2.3.2. Local Content

Identify and calculate the local content, by value for products by components/materials/services to be used in the manufacture of the total quantity of the products.

3. ANNEXURE C

3.1. Guidelines for completing Annexure C: Local Content Declaration – Summary Schedule

Note: The paragraph numbers correspond to the numbers in Annexure C.

C1. Tender Number

Supply the tender number that is specified on the specific tender documentation.

C2. Tender description

Supply the tender description that is specified on the specific tender documentation.

C3. Designated products

Supply the details of the products that are designated in terms of this tender (i.e. buses).

C4. Tender Authority

Supply the name of the tender authority.

C5. Tendering Entity name

Provide the tendering entity name (for example, Unibody Bus Builders (Pty) Ltd).

C6. Tender Exchange Rate

Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

C7. Specified local content %

Provide the specified minimum local content requirement for the tender (i.e. 80%), as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MDB) 6.2.

C8. Tender item number

Provide the tender item number(s) of the products that have a local content requirement as per the tender specification.

C9. List of items

Provide a list of the item(s) corresponding with the tender item number. This may be a short description or a brand name.

Calculation of local content

C10. Tender price

Provide the unit tender price of each item excluding VAT.

C11. Exempted imported content

Provide the ZAR value of the exempted imported content for each item, if applicable. These value(s) must correspond with the value(s) of column D16 on Annexure D.

C12. Tender value net of exempted imported content

Provide the net tender value of the item, if applicable, by deducting the exempted imported content (C11) from the tender price (C10).

C13. Imported value

Provide the ZAR value of the items' imported content.

C14. Local value

Provide the local value of the item by deducting the Imported value (C13) from the net tender value (C12).

C15. Local content percentage (per item)

Provide the local content percentage of the item(s) by dividing the local value (C14) by the net tender value (C12) as per the local content formula in SATS 1286.

Tender Summary

C16. Tender quantity

Provide the tender quantity for each item number as per the tender specification.

C17. Total tender value

Provide the total tender value by multiplying the tender quantity (C16) by the tender price (C10).

C18. Total exempted imported content

Provide the total exempted imported content by multiplying the tender quantity (C16) by the exempted imported content (C11). These values must correspond with the values of column D18 on Annexure D.

C19. Total imported content

Provide the total imported content of each item by multiplying the tender quantity (C16) by the imported value (C13).

C20. Total tender value

Total tender value is the sum of the values in column C17.

C21. Total exempted imported content

Total exempted imported content is the sum of the values in column C18. This value must correspond with the value of D19 on Annexure D.

C22. Total tender value net of exempted imported content

The total tender value net of exempt imported content is the total tender value (C20) less the total exempted imported content (C21).

C23. Total imported content

Total imported content is the sum of the values in column C19. This value must correspond with the value of D53 on Annexure D.

C24. Total local content

Total local content is the total tender value net of exempted imported content (C22) less the total imported content (C23). This value must correspond with the value of E13 on Annexure E.

C25. Average local content percentage of tender

The average local content percentage of tender is calculated by dividing total local content (C24) by the total tender value net of exempted imported content (C22).

4. ANNEXURE D

4.1. Guidelines for completing Annexure D: "Imported Content Declaration – Supporting Schedule to Annexure C"

Note: The paragraph numbers correspond to the numbers in Annexure D.

D1. Tender number

Supply the tender number that is specified on the specific tender documentation.

D2. Tender description

Supply the tender description that is specified on the specific tender documentation.

D3. Designated products

Supply the details of the products that are designated in terms of this tender (i.e. buses).

D4. Tender authority

Supply the name of the tender authority.

D5. Tendering entity name

Provide the tendering entity name (i.e. Unibody Bus Builders (Pty) Ltd).

D6. Tender exchange rate

Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

<u>Table A. Exempted Imported Content</u>

D7. Tender item number

Provide the tender item number(s) of the product(s) that have imported content.

D8. Description of imported content

Provide a list of the exempted imported product(s), if any, as specified in the tender.

D9. Local supplier

Provide the name of the local supplier(s) supplying the imported product(s).

D10. Overseas supplier

Provide the name(s) of the overseas supplier(s) supplying the exempted imported product(s).

D11. Imported value as per commercial invoice

Provide the foreign currency value of the exempted imported product(s) disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

D12. Tender exchange rate

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D13. Local value of imports

Convert the value of the exempted imported content as per commercial invoice (D11) into the ZAR value by using the tender exchange rate (D12) disclosed in the tender documentation.

D14. Freight costs to port of entry

Provide the freight costs to the South African Port of the exempted imported item.

D15. All locally incurred landing costs and duties

Provide all landing costs including customs and excise duty for the exempted imported product(s) as stipulated in the SATS 1286:2011.

D16. Total landed costs excl VAT

Provide the total landed costs (excluding VAT) for each item imported by adding the corresponding item values in columns D13, D14 and D15. These values must be transferred to column C11 on Annexure C.

D17. Tender quantity

Provide the tender quantity of the exempted imported products as per the tender specification.

D18. Exempted imported value

Provide the imported value for each of the exempted imported product(s) by multiplying the total landed cost (excl. VAT) (D16) by the

tender quantity (D17). The values in column D18 must correspond with the values of column C18 of Annexure C.

D19. Total exempted imported value

The total exempted imported value is the sum of the values in column D18. This total must correspond with the value of C21 on Annexure C.

Table B. Imported Directly By Tenderer

D20. Tender item numbers

Provide the tender item number(s) of the product(s) that have imported content.

D21. Description of imported content:

Provide a list of the product(s) imported directly by tender as specified in the tender documentation.

D22. Unit of measure

Provide the unit of measure for the product(s) imported directly by the tenderer.

D23. Overseas supplier

Provide the name(s) of the overseas supplier(s) supplying the imported product(s).

D24. Imported value as per commercial Invoice

Provide the foreign currency value of the product(s) imported directly by tenderer disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

D25. Tender rate of exchange

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D26. Local value of imports

Convert the value of the product(s) imported directly by the tenderer as per commercial invoice (D24) into the ZAR value by using the tender exchange rate (D25) disclosed in the tender documentation.

D27. Freight costs to port of entry

Provide the freight costs to the South African Port of the product(s) imported directly by the tenderer.

D28. All locally incurred landing costs and duties

Provide all landing costs including customs and excise duty for the product(s) imported directly by the tenderer as stipulated in the SATS 1286:2011.

D29. Total landed costs excl VAT

Provide the total landed costs (excluding VAT) for each item imported directly by the tenderer by adding the corresponding item values in columns D26, D27 and D28.

D30. Tender quantity

Provide the tender quantity of the product(s) imported directly by the tenderer as per the tender specification.

D31. Total imported value

Provide the total imported value for each of the product(s) imported directly by the tenderer by multiplying the total landed cost (excl. VAT) (D29) by the tender quantity (D30).

D32. Total imported value by tenderer

The total value of imports by the tenderer is the sum of the values in column D31.

Table C. Imported by Third Party and Supplied to the Tenderer

D33. Description of imported content

Provide a list of the product(s) imported by the third party and supplied to the tenderer as specified in the tender documentation.

D34. Unit of measure

Provide the unit of measure for the product(s) imported by the third party and supplied to tenderer as disclosed in the commercial invoice.

D35. Local supplier

Provide the name of the local supplier(s) supplying the imported product(s).

D36. Overseas supplier

Provide the name(s) of the overseas supplier(s) supplying the imported products.

D37. Imported value as per commercial invoice

Provide the foreign currency value of the product(s) imported by the third party and supplied to the tenderer disclosed in the commercial invoice accepted by SARS.

D38. Tender rate of exchange

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D39. Local value of imports

Convert the value of the product(s) imported by the third party as per commercial invoice (D37) into the ZAR value by using the tender exchange rate (D38) disclosed in the tender documentation.

D40. Freight costs to port of entry

Provide the freight costs to the South African Port of the product(s) imported by third party and supplied to the tenderer.

D41. All locally incurred landing costs and duties

Provide all landing costs including customs and excise duty for the product(s) imported by third party and supplied to the tenderer as stipulated in the SATS 1286:2011.

D42. Total landed costs excluding VAT

Provide the total landed costs (excluding VAT) for each product imported by third party and supplied to the tenderer by adding the corresponding item values in columns D39, D40 and D41.

D43. Quantity imported

Provide the quantity of each product(s) imported by third party and supplied to the tenderer for the tender.

D44. Total imported value

Provide the total imported value of the product(s) imported by third party and supplied to the tenderer by multiplying the total landed cost (D42) by the quantity imported (D43).

D45. Total imported value by third party

The total imported value from the third party is the sum of the values in column D44.

Table D. Other Foreign Currency Payments

D46. Type of payment

Provide the type of foreign currency payment. (i.e. royalty payment for use of patent, annual licence fee, etc).

D47. Local supplier making the payment

Provide the name of the local supplier making the payment.

D48. Overseas beneficiary

Provide the name of the overseas beneficiary.

D49. Foreign currency value paid

Provide the value of the listed payment(s) in their foreign currency.

D50. Tender rate of exchange

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

D51. Local value of payments

Provide the local value of each payment by multiplying the foreign currency value paid (D49) by the tender rate of exchange (D50).

D52. Total of foreign currency payments declared by tenderer and/or third party

The total of foreign currency payments declared by tenderer and/or a third party is the sum of the values in column D51.

D53. Total of imported content and foreign currency payment

The total imported content and foreign currency payment is the sum of the values in column D32, D45 and D52. This value must correspond with the value of C23 on Annexure C.

5. ANNEXURE E

5.1. Guidelines to completing Annexure E: "Local Content Declaration- Supporting Schedule to Annexure C"

The paragraph numbers correspond to the numbers in Annexure E

E1. Tender number

Supply the tender number that is specified on the specific tender documentation.

E2. Tender description

Supply the tender description that is specified on the specific tender documentation.

E3. Designated products

Supply the details of the products that are designated in terms of this tender (for example, buses/canned vegetables).

E4. Tender authority

Supply the name of the tender authority.

E5. Tendering entity name

Provide the tendering entity name (for example, Unibody Bus Builders (Pty) Ltd) Ltd).

Local Goods, Services and Works

E6. Description of items purchased

Provide a description of the items purchased locally in the space provided.

E7. Local supplier

Provide the name of the local supplier that corresponds to the item listed in column E6.

E8. Value

Provide the total value of the item purchased in column E6.

E9. Total local products (Goods, Services and Works)

Total local products (goods, services and works) is the sum of the values in E8.

E10. Manpower costs:

Provide the total of all the labour costs accruing only to the tenderer (i.e. not the suppliers to tenderer).

E11. Factory overheads:

Provide the total of all the factory overheads including rental, depreciation and amortisation for local and imported capital goods, utility costs and consumables. (Consumables are goods used by individuals and businesses that must be replaced regularly because they wear out or are used up. Consumables can also be defined as the components of an end product that are used up or permanently altered in the process of manufacturing, such as basic chemicals.)

E12. Administration overheads and mark-up:

Provide the total of all the administration overheads, including marketing, insurance, financing, interest and mark-up costs.

E13. Total local content:

The total local content is the sum of the values of E9, E10, E11 and E12. This total must correspond with C24 of Annexure C.

T2.2 Returnable Documents that will be incorporated into the contract

T2.2 Returnable Documents: Other Documents that will be incorporated into the contract

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Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

PA- 40: DECLARATION OF DESIGNATED GROUPS FOR PREFERENTIAL PROCUREMENT

Tender no: BL 22/008

Name of Tenderer …… ☐ **EME**[1] ☐ **QSE**[2] ☐ **Non EME/QSE (tick applicable box)**

1. **LIST ALL PROPRIETORS, MEMBERS OR SHAREHOLDERS BY NAME, IDENTITY NUMBER, CITIZENSHIP AND DESIGNATED GROUPS.**

Name and Surname #	Identity/ Passport number and Citizenship##	Percentage owned	Black	Indicate if youth	Indicate if woman	Indicate if person with disability	Indicate if living in Rural (R) / Under Developed Area (UD) / Township (T) / Urban (U).	Indicate if military veteran
1.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
2.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
3.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
4.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
5.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
6.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
7.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
8.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
9.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
10.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
11.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No
12.		%	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ R ☐ UD ☐ T ☐ U	☐ Yes ☐ No

Where Owners are themselves a Company, Close Corporation, Partnership etc, identify the ownership of the Holding Company, together with Registration number
State date of South African citizenship obtained (not applicable to persons born in South Africa)

[1] EME: Exempted Micro Enterprise
[2] QSE: Qualifying Small Business Enterprise

PA- 40: DECLARATION OF DESIGNATED GROUPS FOR PREFERENTIAL PROCUREMENT

Tender no: BL 22/008

2. DECLARATION:

The undersigned, who warrants that he/she is duly authorized to do so on behalf of the Tenderer, hereby confirms that:

1 The information and particulars contained in this Affidavit are true and correct in all respects;

2 The Broad-based Black Economic Empowerment Act, 2003 (Act 53 of 2003), Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000), the Preferential Procurement Regulations, 2017, National Small Business Act 102 of 1996 as amended and all documents pertaining to this Tender were studied and understood and that the above form was completed according to the definitions and information contained in said documents;

3 The Tenderer understands that any intentional misrepresentation or fraudulent information provided herein shall disqualify the Tenderer's offer herein, as well as any other tender offer(s) of the Tenderer simultaneously being evaluated, or will entitle the Employer to cancel any Contract resulting from the Tenderer's offer herein;

4 The Tenderer accepts that the Employer may exercise any other remedy it may have in law and in the Contract, including a claim for damages for having to accept a less favourable tender as a result of any such disqualification due to misrepresentation or fraudulent information provided herein;

5 Any further documentary proof required by the Employer regarding the information provided herein, will be submitted to the Employer within the time period as may be set by the latter;

Signed by the Tenderer

Name of representative	**Signature**	**Date**

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

DPW-21 (EC): RECORD OF ADDENDA TO TENDER DOCUMENTS

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator***		
Tender no:	*BL 22/008*	**Reference no:**	*14/2/1/4/18/6706*

1. I / We confirm that the following communications received from the Department of Public Works and Infrastructure before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer: *(Attach additional pages if more space is required)*

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		

Name of Tenderer	Signature	Date

2. I / We confirm that no communications were received from the Department of Public Works and Infrastructure before the submission of this tender offer, amending the tender documents.

Name of Tenderer	Signature	Date

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

DPW-15 (EC): SCHEDULE OF PROPOSED SUBCONTRACTORS

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator***		
Tender no:	*BL 22/008*	**Reference no:**	*14/2/1/4/18/6706*

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

We confirm that all subcontractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

	Name and address of proposed Subcontractor	Nature and extent of work	Previous experience with Subcontractor
1			
2			
3			
4			
5			

Name of representative	**Signature**	**Capacity**	**Date**

Name of organisation:	

DPW-22 (EC): PARTICULARS OF ELECTRICAL CONTRACTOR

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator***		
Tender no:	BL 22/008	**Reference no:**	**14/2/1/4/18/6706**

Name of Electrical Contractor:	
Address:	
Electrical Contractor registration number at the Department of Labour	

Name of Tenderer	Signature	Date

DPW-23 (EC): SCHEDULE FOR IMPORTED MATERIALS AND EQUIPMENT

Project title:	***Bloemfontein High Court: Upgrading and Renovating of the Electrical Systems including Back-up Generator***		
Tender no:	*BL 22/008*	**Reference no:**	*14/2/1/4/18/6706*

This schedule should be completed by the tenderer. *(Attach additional pages if more space is required)*

Item	Material / Equipment	Rand (R) (Excluding VAT)
1.		**R**
2.		**R**
3.		**R**
4.		**R**
5.		**R**
6.		**R**

The Contractor shall list imported items, materials and/or equipment which shall be excluded from the Contract Price Adjustment Provisions (if applicable) and shall be adjusted in terms of currency fluctuations only. Copies of the supplier's quotations for the items, materials or equipment (provided that such costs shall not be higher than the relevant contract rate as listed above) should be lodged with the Principal Agent / Engineer of the Department of Public Works and Infrastructure within 60 (sixty) days from the date of acceptance of the tender. No adjustment of the local VAT amount, nor the contractor's profit, discount, mark-up, handling costs, etc. shall be allowed.

These net amounts will be adjusted as follows:

FORMULA:

The net amount to be added to or deducted from the contract sum:

$$A = V\left(\frac{Z}{Y} - 1\right)$$

A = the amount (R) of adjustment

V = the net amount (supplier's quotation) (R) of the imported item

Y = exchange rate at the closing date of tender submission

Z = exchange rate on the date of payment.

Name of Tenderer	Signature	Date

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

SUPPLEMENTARY SPECIFICATION

FOR THE

ELECTRICAL INSTALLATION

OF A

COMPREHENSIVE SERVICE

DECEMBER 2021

SUPPLEMENTARY SPECIFCATION FOR THE ELECTRICAL INSTALLATION

OF A COMPREHENSIVE SERVICE

AT

BLOEMFONTEIN HIGH COURT IN BLOEMFONTEIN, FREE STATE

CONSISTING OF:

SECTION C3…….. : ELECTRICAL INSTALLATION WORK

In part C3 see separate documents for:

Building work
Mechanical work
Fire detection work
Generator
Lift
Etc.

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SPECIFICATION FOR ELECTRICAL WORK

PART 1 - GENERAL

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PART 1 - GENERAL

1 TESTS

After completion of the works and before practical completion is achieved, a full test will be carried out on the installation for a period of sufficient duration to determine the satisfactory working thereof. During this period the installations will be inspected and the Contractor shall make good, to the satisfaction of the Principle Agent/Electrical Engineer or the employer, any defects which may arise.

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

2 MAINTENANCE OF INSTALLATIONS

With effect from the date of the Practical completion Certificate the Contractor shall at his own expense undertake the regular servicing of the installation during the maintenance period and shall make all adjustments necessary for the correct operation thereof.

If during the said period the installations is not in working order for any reason for which the Contractor is responsible, or if the installations develops defects, he shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however be so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory during the said period the Contractor shall, if called upon by the Principle Agent/Electrical Engineer or the Employer, at his own expense replace the whole of the installations or such parts thereof as the Principal Agent/Electrical Engineer or the Employer may deem necessary with apparatus specified by the Principal Agent/Electrical Engineer or the Employer.

3 REGULATIONS

The installation shall be erected and tested in accordance with the Acts and Regulations as indicated in the scope of works

4 NOTICES AND FEES

The Contractor shall give all notices required by and pay all necessary fees, including any inspection fees, which may be due to the local Supply Authority.

On production of the official account, only the net amount of the fee charged by the Supply Authority for connection of the installation to the supply mains, will be refunded to the Contractor by the Employer.

5 SCHEDULE OF FITTINGS

In all instances where schedule of light, socket outlet and power points are attached to or included on the drawings, these schedules are to be regarded as forming part of the specification.

6 QUALITY OF MATERIALS

Only materials of first class quality shall be used and all materials shall be subject to the approval of the Employer. Departmental specifications for various materials to be used on this Contract are attached to and form part of this specification.

Wherever applicable the material is to comply with the relevant South African Bureau of Standards, specifications, or to IEC Specifications, where no SANS Specifications exist.

Materials wherever possible, must be of South African manufacture.

7 CONDUIT AND ACCESSORIES

The type of conduit and accessories required for the service, i.e. whether the conduit and accessories shall be of the screwed type, plain-end type or of the non-metallic type and whether metallic conduit shall be

black enamelled or galvanised, is specified in Part 2 of this specification.

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

The conduit and conduit accessories shall comply fully with the applicable SANS specifications as set out below and the conduit shall bear the mark of approval of the South African Bureau of Standards.

a) Screwed metallic conduit and accessories: SANS 61386-1 and 21.

b) Plain-end metallic conduit and accessories: SANS 61386-1 and 21.

c) Non-metallic conduit and accessories: SANS 61386-1 and 21.

All conduit fittings except couplings, shall be of the inspection type. Where cast metal conduit accessories are used, these shall be of malleable iron. Zinc base fittings will not be allowed.

Bushes used for metallic conduit shall be brass and shall be provided in addition to locknuts at all points where the conduit terminates at switchboards, switch-boxes, draw-boxes, etc.

Draw-boxes are to be provided in accordance with the "Wiring Code" and wherever necessary to facilitate easy wiring.

For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm. In all other instances the sizes of conduit shall be in accordance with the "Wiring Code" for the specified number and size of conductors, unless otherwise directed in part 2 of this specification or indicated on the drawings.

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

Running joints in screwed conduit are to be avoided as far as possible and all conduit systems shall be set or bent to the required angles. The use of normal bends must be kept to a minimum with exception of larger diameter conduits where the use of such bends is essential.

All metallic conduit shall be manufactured of mild steel with a minimum thickness of 1,2mm for plain-end conduit and 1,6mm in respect of screwed conduit.

Under no circumstances will conduit having a wall thickness of less than 1,6mm be allowed in screed laid on top of concrete slabs.

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

Conduit and conduit accessories used for flame-proof or explosion proof installations and for the suspension of luminaires as well as all load bearing conduit shall in all instances be of the metallic screwed type.

All conduit and accessories used in areas within 50 km of the coast shall be galvanised to SANS 32 and SANS 121.

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

8 CONDUIT IN ROOF SPACES

Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5m by means of saddles screwed to the roof timbers.

Nail or crampets will not be allowed.

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

Under flat roofs, in false ceilings or where there is less than 0,9m of clearance, or should the ceilings be insulated with glass wool or other insulating material, the conduit shall be installed in such a manner as to allow for all wiring to be executed from below the ceilings.

Conduit runs from distribution boards shall, where possible terminate in fabricated sheet steel draw-boxes installed directly above or in close proximity to the boards.

9 SURFACE MOUNTED CONDUIT

Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified under Part 2 of the specification, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

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

No threads will be permitted to show when the conduit installation is complete, except where running couplings have been employed.

Running couplings are only to be used where unavoidable, and shall be fitted with a sliced couplings as a lock nut.

Conduit is to be run on approved spaced saddles rigidly secured to the walls.

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

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

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

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

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

Painting of surface conduit shall match the colour of the adjacent wall finishes.

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

10 CONDUIT IN CONCRETE SLABS

In order not to delay building operations the Contractor must ensure that all conduits and other electrical equipment which are to be cast in the concrete columns and slabs are installed in good time.

The Contractor shall have a representative in attendance at all times when the casting of concrete takes place.

Draw-boxes, expansion joint boxes and round conduit boxes are to be provided where necessary. Sharp

bends of any nature will not be allowed in concrete slabs.

Draw and/or inspection boxes shall be grouped under one common cover plate, and must preferable be installed in passages or male toilets.

All boxes, etc., are to be securely fixed to the shuttering to prevent displacement when concrete is cast. The conduit shall be supported and secured at regular intervals and installed as close as possible to the neutral axis of concrete slabs and/or beams.

Before any concrete slabs are cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

11 FLEXIBLE CONNECTIONS FOR CONNECTING UP OF STOVES, MACHINES, ETC.

Flexible tubing connections shall be of galvanised steel construction, and in damp situations of the plastic sheathed galvanised steel type. Other types may only be used subject to the prior approval of the Department's site electrical representative.

Connectors for coupling onto the flexible tubing shall be of the gland or screw-in types, manufactured of either brass or cadmium or zinc plated mild steel, and the connectors after having been fixed onto the tubing, shall be durable and mechanically sound.

Aluminium and zinc alloy connectors will not be acceptable.

12 WIRING

Except where otherwise specified in Part 2 of this specification, wiring shall be carried out in conduit throughout. Only one circuit per conduit will be permitted.

No wiring shall be drawn into conduit until the conduit installation has been completed and all conduit ends provided with bushes. All conduits to be clear of moisture and debris before wiring is commenced.

Unless otherwise specified in Part 2 of this specification or indicated on the service drawings, the wiring of the installation shall be carried out in accordance with the "Wiring Code". Further to the requirements concerning the installation of earth conductors to certain light points as set out in the "Wiring Code", it is a specific requirement of this document that where plain-end metallic conduit or non-metallic conduit has been used, earth conductors must be provided and drawn into the conduit with the main conductors to all points, including all luminaires and switches throughout the installation.

Wiring for lighting circuits is to be carried out with 1,5mm² conductors and a 1,5mm²-earth conductor. For socket outlet circuits the wiring shall comprise 4mm² conductors and a 2,5mm²-earth conductor. In certain instances, as will be directed in Part 2 of this specification, the sizes of the aforementioned conductors may be increased for specified circuits. Sizes of conductors to be drawn into conduit in all other instances, such as feeders to distribution boards, power points etc., shall be as specified elsewhere in this specification or indicated on the drawings. Sizes of conductors not specified must be determined in accordance with the "Wiring Code".

The loop-in system shall be followed throughout, and no joints of any description will be permitted.

The wiring shall be done in PVC insulated 600/1000 V grade cable to SANS 1507.

Where cable ends connect onto switches, luminaires etc., the end strands must be neatly and tightly twisted together and firmly secured. Cutting away of wire strands of any cable will not be allowed.

13 SWITCHES AND SOCKET OUTLETS

All switches and switch-socket outlet combination units shall conform to the Department Quality Specifications, which form part of this specification.

No other than 16 A 3 pin sockets are to be used, unless other special purpose types are distinctly specified or shown on the drawings.

All light switches shall be installed at 1,4m above finished floor level and all socket outlets as directed in the Schedule of Fittings which forms part of this specification or alternatively the height of socket outlets may be indicated on the drawings.

14 SWITCHGEAR

Switchgear, which includes circuit breakers, iron-clad switches, interlocked switch-socket outlet units, contactors, time switches, etc., is to be in accordance with the Departmental Quality Specifications which form part of this specification and shall be equal and similar in quality to such brands as may be specified.

For uniform appearance of switchboards, only one approved make of each of the different classes of switchgear mentioned in the Quality Specifications shall be used throughout the installations.

15 SWITCHBOARDS

All boards shall be in accordance with the types as specified, be constructed according to the detail or type drawings and must be approved by the Employer before installation.

In all instances where provision is to be made on boards for the supply authority's main switch and/or metering equipment the contractor must ensure that all requirements of the authorities concerned in this respect are met.

Any construction or standard type aboard proposed, as an alternative to that specified must have the prior approval of the Employer.

All busbars, wiring, terminals, etc., are to be adequately insulated and all wiring is to enter the switchgear from the back of the board. The switchgear shall be mounted within the boards to give a flush front panel. Cable and boxes and other ancillary equipment must be provided where required.

Clearly engraved labels are to be mounted on or below every switch. The working of the labels in English, is to be according to the lay-out drawings or as directed by the Electrical Engineer and must be confirmed on site. Flush mounted boards to be installed with the top of the board 2,0m above the finished floor level.

16 DISTRIBUTION CABLES

The storage, transportation, handling and laying of the cables shall be according to first class practice and the contractor shall have adequate and suitable equipment and labour to ensure that no cables are damaged during such operations.

The cable trenches shall be excavated to a depth of 0,7m deep below ground level and shall be 450mm wide for one to three cables, and the width shall be increased where more than three cables are laid together so that the cables may be placed at least two cable diameters apart throughout the run. The bottom of the trench shall be level and clean and the bottom and sides free from rocks or stones liable to cause damage to the cable.

The Contractor must take all necessary precautions to prevent the trenching work being in any way a hazard to the personnel and public and to safeguard all structures, roads, sewage works or other property on the site from any risk of subsidence and damage.

In the trenches the cables shall be laid on a 75mm thick bed of sand and be covered with a 150mm layer of sand before the trench is filled in.

All joints in underground cables and terminations shall be made either by means of compound filled boxes according to the best-established practice by competent cable jointers using first class materials or by means of approved epoxy-resin pressure type jointing kits such as Scotch cast. Epoxy-resign joints must be made entirely in accordance with the manufacturer instructions and with materials stipulated in such instructions. Low tension PVCA cables are to be made off with sealing glands and materials designed for this purpose which must be of an approved make. Where cables are cut and not immediately made off, the ends are to be sealed without delay.

The laying of cables shall not be commenced until the trenches have been inspected and approved. The

cable shall be removed from the drum in such a way that no twisting, tension or mechanical damage is caused and must be adequately supported at intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after drawing in of the cables.

Backfilling (after bedding) of the trenches is to be carried out with a proper grading of the material to ensure settling without voids, and the material is to be stamped down after the addition of every 150mm. The surface is to be made good as required.

On each completed section of the laid and jointed cable, the insulation resistance shall be tested to approval with an approved "Megger" type instrument of not less than 500 V for low tension cables.

Earth continuity conductors are to be run with all underground cables constituting part of a low-tension distribution system. Such continuity conductors are to be stranded bare copper of a cross-sectional area equal to at least half that of one live conductor of the cable and shall not be less than $4mm^2$ or more than $70mm^2$. A single earth wire may be used as earth continuity conductor for two or more cables run together, branch earth wires being brazed on where required.

The requirements specified hereafter are aimed essentially at high tension cable but are also valid for low tension cable.

1. The use of the term "inspector", includes the engineer or inspector of the Department or an empowered person of the concerned supervising Consulting Engineer's firm.

2. No cable is to be laid before the cable trench is approved and the soil qualification of the excavation is agreed upon by the Contractor and Inspector.

3. After the cable has been laid and before the cable trench is back-filled the inspector must ensure that the cable is properly bedded and that there is no undesirable material included in the bedding layer.

4. All cable jointing and the making off of the cables must only be carried out by qualified experienced cable jointers. Helpers of the jointers may not saw, strip, cut, solder, etc. and other work undertaken by them must be carried out under the strict and constant supervision of the jointer.

5. Before the Contractor allows the jointer to commence with the jointing work or making off of the cable (making off is recognized as half a joint) he must take care and ensure:

   5.1 That he has adequate and suitable material available to complete the joint properly and efficiently. Special attention must be given to ensure the cable ferrules and cable tugs are of tinned copper and of sufficient size. The length of the jointing lugs must be at least six times the diameter of the conductor,

   5.2 That the joint pit is dry and that all loose stones and material are removed,

   5.3 That the walls and banks of the joint pit are reasonably firm and free from loose material which can fall into the pit,

   5.4 That the necessary coffer-dams or retaining walls are made to stop the flow of water into the joint pit,

   5.5 That the joint pit is provided with suitable groundsheets so that the jointing work is carried out in clean conditions,

   5.6 That the necessary tents or sails are installed over the joint pit to effectively avert unexpected rainfall and that sufficient light or lighting is provided,

   5.7 That the necessary means are available to efficiently seal the jointing or cable end when an unexpected storm or cloudburst occurs, regardless of how far the work has progressed,

5.8 That the cables and other materials are dry, undamaged and in all respects are suitable for the joint work or making off,

5.9 That the heating of cable oil, cable compound, plumbers' metal and solder is arranged that they are at the correct temperature when required so that the cable is not unnecessary exposed to the atmosphere and consequently the ingress of moisture (care must be taken of overheating)

5.10 Flow temperatures of cable oil and compound must be determined with suitable thermometers. Cable oil and compound must not be heated to exceed the temperatures given on the containers and precaution must be taken to ensure that the tin is not overheated in one position. The whole mass must be evenly and proportionally heated.

5.11 Temperatures of solder and plumbers' metal may be tested with brown paper (testing time: 3 seconds). The paper must colour slightly - not black or burnt).

6. Before the paper insulated cables are joined, they must be tested for the presence of moisture by the cable jointers test. This consists of the insertion of a piece of unhandled insulated impregnated paper tape in warm cable oil heated to a temperature of 130 $\pm$ 5°C.

Froth on the surface of the oil is an indication that moisture is present in the impregnated insulation and the amount of the froth gives an indication of the moisture present.

7. If the cable contains moisture or is found to be otherwise unsuitable for jointing or making of the inspector is to be notified immediately and he will issue the necessary instruction to cope with the situation.

8. The joint or making off of paper insulated cables must not be commenced during rainy weather.

9. Once a joint is in progress the jointer must proceed with the joint until it is complete and before he leaves the site.

10. The jointer must ensure that the material and his tools are dry at all times, reasonably clean and absolutely free from soil.

11. Relating to the jointing of the cable the following requirements apply:

11.1 All jointing must be carried Out in accordance with recognized and tried techniques and comply strictly with the instructions given by the supplier of the jointing kit.

11.2 The cables must be twisted by hand so that the cores can be joined according to the core numbers. If necessary, the cable is to be exposed for a short distance to accomplish this. Under no circumstances may the cores in a joint be crossed so as to enable cores to be joined according to the core numbers. If it is not possible to twist the cables so that the preceding requirements can be met, then cores are to be joined in the normal way without any consideration of the core numbers.

11.3 Normally the cables will have profile conductors. The conductors shall be pinched with gas pliers to form a circular section, bound with binding wire so that they do not spread, and then tinned before jointing.

11.4 Jointing ferrules, the length of which are at least 6 times the diameter of the conductors, must be slid over the conductor ends to be joined and crimped tightly. Then they are soldered by means of the ladle process whilst being crimped further closed.

Use resin only as a flux. The slot opening in the ferrule must be completely filled, including all depressions.

Remove all superfluous metal with a cloth dipped in tallow. Work during the soldering process must be from top to bottom. Rub the ferrule smooth and clean with aluminium oxide tape after it has cooled down to ensure that there are not any sharp points or edges.

NB:

The spaces between the conductor strands must be completely filled by soldering process and must be carried out quick enough to prevent the paper insulation from burning or drying out unnecessarily.

11 .5 After the ferrules have been rubbed smooth and dean, they and the exposed cores must be treated with hot cable oil (110°C) to remove all dust and moisture. These parts are to be thoroughly basted with the oil.

11.6 The jointer must take care that his hands are dry and clean before the joint is insulated. Also, the insulating tape which is to be used must first be immersed in warm cable oil (110°C) for a sufficient period to ensure that no moisture is present.

11 .7 After the individual cores have been installed, they must be well basted with hot cable oil and again after the applicable separator and/or belt insulation tape is applied before the lead joint sleeve is placed in position.

11.8 The lead joint sleeve must be thoroughly cleaned and prepared before it is placed on the cable and must be kept clean during the whole jointing process. Seal the filling apertures of the sleeve with tape until the sleeve is ready for compound filling.

11.9 The plumbing joints employed to solder the joint sleeve to the cable sheath, must be cooled off with tallow and the joint sleeve is to be filled with compound while it is still warm. Top up continuously until the joint is completely filled to compensate for the compound shrinkage.

11.10 The outer joint box must be clean and free from corrosion. After it has been placed in position it must be slightly heated before being filled with compound. Top up until completely full.

12. As far as cable end boxes are concerned the requirements as set out above are valid where applicable.

17 WORKMANSHIP AND STAFF

Except in the case of electrical installations supplied by a single-phase electricity supply at the point of supply, an accredited person shall exercise general control over all electrical installation work being carried out.

The workmanship shall be of the highest grade and to the satisfaction of the Employer.

All inferior work shall, on indication by the Employer's inspecting officers, immediately be removed and rectified by and at the expense of the Contractor.

18 VERIFICATION AND CERTIFICATION OF ELECTRICAL INSTALLATION (CERTIFICATE OF COMPLIANCE AND TEST REPORT

On completion of the service, a certificate of compliance must be issued to the Principal Agent/Electrical Engineer or Employer in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993) in the format as set out in SANS 10142-1 & 2.

19 EARTHING OF INSTALLATION

Main earthing

The type of main earthing must be as required by the supply authority if other than the Employer, and in any event as directed by the Principal Agent/Electrical Engineer, who may require additional earthing to meet test standards.

Where required an earth mat shall be provided, the minimum size, unless otherwise specified, being 1,0m x 1,0m and consisting of 4mm diameter hard-drawn bare copper wires at 250mm centres, brazed at all intersections.

Alternatively or additionally earth rods or trench earths may be required as specified or directed by the Electrical Engineer.

Installations shall be effectively earthed in accordance with the "Wiring Code" and to the requirements of the supply authority. All earth conductors shall be stranded copper with or without green PVC installation.

Connection from the main earth bar on the main board must be made to the cold water main, the incoming service earth conductor, if any and the earth mat or other local electrode by means of 12mm x 1,60 mm solid copper strapping or 16 mm² stranded (not solid) bare copper wire or such conductor as the Department's representative may direct. Main earth copper strapping where installed below 3m from ground level, must be run in 20 mm diameter conduit securely fixed to the walls.

All other hot and cold water pipes shall be connected with 12mm x 0,8mm perforated for solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipework with brass nuts and bolts and against walls with brass screws at 150-mm centres. In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6m of switchboards an earth connection consisting of copper strapping shall be installed between the pipework and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each distribution board.

Roofs, gutters and down pipes

Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes shall be earthed. One bare 10mm² copper conductor shall be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor and each switchboard. The roof and gutters shall be connected at 15m intervals to this conductor by means of 12mm X 0,8mm copper strapping (not conductors) and galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

Sub-distribution boards

A separate earth connection shall be supplied between the earth busbar in each sub-distribution board and the earth busbar in the Main Switchboard. These connections shall consist of a bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors. Alternatively armoured cables with earth continuity conductors included in the armouring may be utilised where specified or approved.

Sub-circuits

The earth conductors of fall sub-circuits shall be connected to the earth busbar in the supply board in accordance with SANS 10142.

Ring Mains

Common earth conductors may be used where various circuits are installed in the same wire way in accordance with SANS 10142. In such instances the sizes of earth conductors shall be equivalent to that of the largest current carrying conductor installed in the wire way, alternatively the size of the conductor shall be as directed by the Engineer. Earth conductors for individual circuits branching from the ring main shall by connected to the common earth conductor with T-ferrules or soldered. The common earth shall not be broken.

Non-metallic Conduit

Where non-metallic conduit is specified or allowed, the installation shall comply with the Department's standard quality specification for "conduit and conduit accessories".

Standard copper earth conductors shall be installed in the conduits and fixed securely to all metal

appliances and equipment, including metal switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

Flexible Conduit

An earth conductor shall be installed in all non-metal flexible conduit. This earth conductor shall not be installed externally to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

Connection

Under no circumstances shall any connection points, bolts, screws, etc., used for earthing be utilised for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided.

Unless earth conductors are connected to proper terminals, the end shall be tinned and lugged.

20 MOUNTING AND POSITIONING OF LUMINAIRES

The Contractor is to note that in the case of board and acoustic tile ceilings, i.e. as opposed to concrete slabs, close co-operation with the building contractor is necessary to ensure that as far as possible the luminaires are symmetrically positioned with regard to the ceiling pattern.

The layout of the luminaires as indicated on the drawings must be adhered to as far as possible and must be confirmed with the Department's representative.

Fluorescent luminaires installed against concrete ceilings shall be screwed to the outlet boxes and in addition 2 x 6mm expansion or other approved type fixing bolts are to be provided. The bolts are to be ¾ of the length of the luminaires apart.

Fluorescent luminaires to be mounted on board ceilings shall be secured by means of two 40mm x No. 10 round head screws and washers. The luminaires shall also be bonded to the circuit conduit by means of locknuts and brass bushes. The fixing screws are to be placed ¾ of the length of the fitting apart.

Earth conductors must be drawn in with the circuit wiring and connected to the earthing terminal of all fluorescent luminaires as well as other luminaires exposed to the weather in accordance with the "Wiring Code".

Incandescent luminaires are to be screwed directly to outlet boxes in concrete slabs. Against board ceilings the luminaires shall be secured to the brandering or joists by means of two 40mm x No. 8 round head screws.

21 SURGE PROTECTION

The contractor shall include for the installation of surge protection equipment on all system input/output circuits, power supply input (dc, mains) circuits, and for the necessary earth connections.

Surge protection shall consist of, but not be limited to the following requirements:

(a) On all analogue/digital input and output circuits - suitable signal surge protection units with appropriate voltage ratings as detailed in the paragraph on "Signal Lightning Protection Modules".

(b) On all mains power supply circuits - suitable power supply protection modules as detailed in the paragraph on "Power Supply Protection Modules".

(c) On all telephone lines - Telkom approved protection network, containing gas arresters, inductances, transport type arresters and 600Ω/600Ω isolating transformers. Loop and ringing current circuits shall be optically isolated.

(d) Surge arresters shall be installed on all phases at the input terminals to each equipment cabinet.

(e) Where external lines have to interface with sensitive electronic equipment, such as computers and associated peripheral equipment, suitable opto-isolators with an isolation level of at least 5kV shall be installed.

(f) All co-axial cables shall be provided with in-line surge suppressers.

It is not anticipated that the stated equipment will, used on their own, necessary provide the required level of protection and the Contractor shall implement additional measures deemed necessary to achieve the required protection level.

The Engineer may allow use of alternative types of surge arresters, provided that equivalent or superior protection levels will be achieved. SABS and/or CSIR test reports to substantiate claims shall be submitted to the Engineer prior to installation for the alternative equipment.

The connecting cable between electronic units shall have continuous screen (not bridged) which shall be earthed at both ends.

22 UNDERFLOOR DUCTING

a) **General**

This section covers two or three compartments under floor ducting.

b) **Construction**

The ducting and associated accessories shall be manufactured from 2 mm thick sheet steel. The sheet steel shall either be galvanized prior to the manufacturing of the ducting or shall be epoxy powder coated after manufacture.

The three-compartment ducting shall be subdivided into three approximately equal compartments, of which the centre compartment shall be used for electrical power distribution with the outer two compartments for other services.

Outlets shall be provided on a modular basis in the ducting for the installation of pedestal or recessed outlets. The openings shall have removable flush cover plates and shall have tapped holes for the installation of the pedestal or recessed outlets.

The under-floor ducting shall be complete with flush cross-over, T-junction and right-angle bend draw boxes. The junction boxes shall be complete with cross-over of services and removal cover plates secured by means of countersunk screws.

c) **Pedestals**

Pedestals suitable for two or three services as specified shall be manufactured from die-cast aluminium or pressed steel. The pedestals shall be epoxy coated of an approved colour after the manufacturing thereof.

d) **Installations**

The under-floor ducting complete with accessories shall be installed strictly in accordance with the manufacturer's instructions.

The ducting shall be fixed to the floor by approved means.

Up bends shall be supplied and installed where ever the ducting is terminated at distribution boards, telephone distribution boards or behind power skirting.

The power circuit wiring shall be installed in the centre compartment of the ducting. Sufficient slack shall be left in the form of a loop at each outlet in the ducting in the area to be served by the ducting. Galvanized draw wires shall be installed in the other compartments to enable cables to be drawn in by others. The entire installation shall be effectively earthed and bonded together.

23 POWER SKIRTING

a) **General**

This section covers the supply and installing of two or three compartment power skirting.

b) **Construction**

The power skirting and covers shall be manufactured from 1 mm thick sheet steel or aluminium and shall be manufactured in modular lengths. The length of the skirting shall not exceed 3 metres and, unless otherwise specified in the detail specification, the covers shall be supplied in 1 metre lengths. The covers shall either snap on or shall be fixed by means of toggle or swivel nuts.

Each modular cover shall be punched and prepared for the installation of a standard three pin socket outlet. The punched holes shall be blanked off with easily removable blanking plates, painted the same colour as the power skirting. Suitable brackets shall be supplied for the fixing of the socket outlet to the channel.

All internal and external bends and off sets shall be factory made.

The power skirting and cover shall be epoxy powder coated of an approved colour after the manufacturing thereof.

c) **Installation**

Conduits for the circuit wiring to the power skirting shall be installed in the floor slabs and chased into the walls to terminate in flush conduit boxes behind the power skirting at the heights of the compartments for the telephone, power and other service compartments.

The wiring shall pass through large diameter holes, suitably bushed, cut in the rear of the power skirting.

Where power skirting is interrupted by doorways bridging conduits shall be installed for each of the service compartments.

24 TRUNKING

a) **General**

This section covers the supply and installation of trunking and accessories in buildings.

b) **Construction**

All non-current carrying metal parts of the trunking shall be bonded to the building earth.

All accessories shall be purpose-made and shall conform to the same specification as the trunking.

c) **Installation**

Trunking shall be of the size and type as specified in the detail specification.

The electrical subcontractor shall ensure that the trunking is installed in accordance with the routes indicated on the relevant drawings.

However, should the electrical subcontractor discover that the indicated route is not practically possible, or for some other reason the route clashes with other services, he shall immediately contact the engineer for clarification in this regard.

d) **Ceiling space**

When installed in open ceiling spaces, trunking shall be mounted as close as is physically possible to immediately below the apex of the roof to allow maximum working space. The trunking shall be installed along the full length of the open ceiling space. Individual conduits shall be extended from the trunking to switch and socket outlet boxes, light points, distribution boards, etc.

The trunking shall be installed in one straight length and all joints shall be both electrically and mechanically continuous. The trunking shall only be installed where there is a minimum clearance of 750 mm as measured between the top of the final trunking installation and the underside of the roof sheeting.

The trunking shall be securely fixed to every roof truss or member by means of round headed screws.

Both incoming and outgoing conduits shall be bonded to clean surfaces, both internally and externally, by means of two locknuts and a female brass bush. A solid brass bushnut installed from inside the trunking may also be used. Conduits which are extended from the trunking to outlets and power points shall be installed along roof members. Suitable timber or other supports shall be provided for free standing conduits extended from the trunking.

e) **Suspending or fixing trunking against walls**

The electrical subcontractor shall provide all the necessary hangers, supports, brackets and fixing hardware for the securing of the trunking installation.

Trunking up to and including 76 mm x 76 mm shall be supported at regular maximum spacing of 600 mm and larger channels at regular maximum spacing of 1 m. Trunking runs shall be carefully planned to prevent clashes with other services and to ensure that all covers can be easily removed after completion of the installation.

Purpose made clamps and hangers shall be provided as required. Where however it is not possible to support the trunking at the specified spacing, such trunking sections shall be supported in a sound manner and to the approval of the engineer.

f) **Cast in concrete**

Where trunking is to be cast into concrete, the insert type of trunking shall be used. Spacer blocks shall be used where required to prevent the trunking from being deformed during the casting of the concrete.

The trunking shall be filled with polystyrene or other suitable fillers, prior to casting, to prevent the ingress of concrete.

The trunking shall furthermore be securely fixed in position to the shuttering.

g) **Conduit connections**

Conduit connections shall be bonded to clean surfaces, both internally and externally, by means of either two locknuts and a female brass bush or by means of a solid brass nut inserted from the inside of the trunking. Conduit connections may be made by means of a conduit box if the trunking is wide enough to allow a hole to be punched through the back or side thereof. All holes through which conductors pass shall be fitted with bushes, grommets or shall be aligned with PVC strip grommet.

h) **Joints and bends**

Two adjoining lengths of trunking shall be aligned and shall be securely joined by means of fishplates fixed by means of mushroom bolts, washers and nuts. Alternatively, connection pieces that are pop-riveted to both adjoining sections may be used.

All adjoining lengths of trunking shall be rectangular and shall burr tightly. Special care shall be taken to ensure that the covers fit tightly across the joints.

Where the trunking passes through an expansion joint in the structure, suitable expansion joints shall be provided in the trunking by means of fishplates which are to be pop-riveted or screwed to the trunking on one side of the expansion joint and floating flecky, without obstruction in the trunking on the opposite side of the expansion joint.

Bends and T-joints shall be constructed to ensure compliance with the minimum allowable bending radii as specified in SANS 10142, appendix D in the case of PVC insulated cables and conductors.

All burrs and sharp edges shall be removed from the cut edges of the trunking and the inside edges shall be lined with a suitable rubberised or plastic compound to prevent laceration of the conductor insulation during installation.

i) **Circuits**

The conductors for each individual circuit, including the earth continuity conductor for that circuit, shall be grouped together at regular spacing not exceeding 500 mm by means of PVC cable ties or straps.

Each circuit to be installed inside the trunking shall be individually laid to avoid unnecessary tangling of the grouped conductor.

The utilized cross-sectional area of the trunking shall not normally exceed 50% of the total cross section of the specified trunking.

j) **Earthing**

A separate earth continuity conductor of size as specified in the detail specification shall be installed from the main earth bar or terminal to the trunking where it shall be terminated to ensure a posture earthing of the trunking.

The earth conductor shall be equipped with a crimped or soldered lug and shall be bolted to the wall of the trunking by means of a brass bolt, washers and nut.

k) **Cover plates**

Cover plates shall be installed over the full length of the installed trunking.

Flush mounted trunking shall be provided with overlapping metal cover plates with plastic edge trim to cover irregularities in the wall recess.

Where required and when specified, in the detail specification, cover plates shall be attached to the trunking by means of screws at suitable intervals to prevent warping.

l) **Vermin proofing**

After installation all trunking shall be suitably vermin proofed. Any holes present in the trunking shall be sealed by means of screwed metal plugs or else with metal strips which are tube-bolted or pop-riveted to the trunking.

No timber or other temporary form of plug shall be accepted. Cover plates shall be installed over the full length of the trunking.

PART 2: INSTALLATION DETAILS

[Omit which is not applicable. Clauses 1 to 10 of Part 2 are standard clauses (which should not be altered) and must be inserted in the document in the order as set out.]

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PART 2: INSTALLATION DETAILS

1 CABLE SLEEVE PIPES

Where cables cross under roadways, other services and where cables enter buildings, the cables shall be installed in earthenware or high-density polyethylene pipes.

The ends of all sleeves shall be sealed with a non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed.

2 NOTICES

The Contractor shall issue all notices and make the necessary arrangements with Supply Authorities, the Postmaster-General, and S.A. Transport Services, Provincial or National Road Authorities and other authorities as may be required with respect to the installation.

3 ELECTRICAL EQUIPMENT

All equipment and fittings supplied must be in accordance with the attached quality specification (Part 3 of this document), suitable for the relevant supply voltage, and frequency and must be approved by the Employers Electrical Engineer.

4 DRAWINGS

The drawings generally show the scope and extent of the proposed work and shall not be held as showing every minute detail of the work to be executed.

The position of power points, switches and light points that may be influenced by built-in furniture must be established on site, prior to these items being built in.

5 BALANCING OF LOAD

The Contractor is required to balance the load as equally as possible over the multiphase supply.

6 SERVICE CONDITIONS

All plant shall be designed for the climatic conditions appertaining to the service.

7 SWITCHES AND SOCKET OUTLETS

The installation of switches and socket outlets must conform to clause 13 of Part 1 of this specification.

8 LIGHT FITTINGS AND LAMPS

The installation and mounting of luminaires must conform to clause 19 of Part 1 of this specification.

All fittings to be supplied by the Contractor shall have the approval of the Employer.

The light fittings must be of the type specified in the Schedule of Light Fittings.

9 EARTHING AND BONDING

The Contractor will be responsible for all earthing and bonding of the building and installation. The earthing and bonding is to be carried out strictly as described in clause 18 of Part 1 of this specification and to the satisfaction of the Employer/s Electrical Engineer.

10 MAINTENANCE OF ELECTRICAL SUPPLY

All interruptions of the electrical supply that may be necessary for the execution of the work, will be subject to prior arrangement between the Contractor and the Client and the Employer's Electrical Engineer.

11 EXTENT OF WORK

The work covered by this contract comprises the complete electrical installation, in working order, as shown on the drawings and as per this specification, including the supply and installation of all fittings and also the installation of such equipment supplied by the Employer.

The scope of works for electrical services consists of, but not limited to the following:

- Statutory upgrade of the electrical installation, i.e. Installing newer electrical equipment that complies with the minimum requirements of SANS and OHS Act legislations as per the detail design.
- Issuing of Certificate of Compliance (COC) for all distribution panels.
- Extension of the lightning protection installation to Block A and Block C as per the detail design.
- Decommissioning of existing 25kVA backup generator and installation of new 500kVA backup generator.
- Feeder identification (cable tracing all distribution boards), pressure testing of existing cables, labelling of distribution panels as per the DPW requirements and issuing of As-Built drawings.
- Installation of new energy efficient luminaires as per the lighting design.
- Installation of additional normal and emergency power sockets as per the detail design and office/room requirements.
- Installation of electrical supply to the new air conditioning split units.
- Installation of warning signs on new and existing distribution panels.
- Installation of wire ways for the new electrical reticulation system.

12 SUPPLY AND CONNECTION

[The supply voltage, responsibility of the Supply Authority and the contractor must be specified]

EXAMPLE:

The supply will be at 400/230 Volt 50Hz.

The Contractor must arrange in good time with the local Municipality for the main supply upgrade of the existing 500kVA transformer to a 750kVA transformer i.e. 250kVA additional, and low-tension meter point and submit the account to the Employer's Regional Office for payment.

The Contractor will be responsible for the supply and installation of the supply cable from the meter box to the main low-tension distribution board (MDB). The size and length of the cable is listed in the Schedule of Cables and measured in the Bills of Quantities.

Standby Plant

The 500kVA standby plant complete with Automatic Changeover Control Panel (Main Distribution Board – DB MAIN LV) be supplied, installed and commissioned by others.

The Contractor will only be responsible for the supply and installation of the cable connections between the Main Distribution Board and the Changeover Control Panel (Main Distribution Board – DB MAIN LV).

The supply cables are listed in the Schedule of Cables and measured in the Bills of Quantities.

13 CONDUIT AND WIRING

Conduit and conduit accessories shall be black enameled/galvanized screwed conduit or black enameled/galvanized plain end conduit in accordance with SANS 61386.

All conduits, regardless of the system employed, shall be installed strictly as described in the applicable paragraphs of clauses 4 to 8 of Part 1 of the specification. Wiring of the installation shall be carried out as directed in clause 9 part 1 of this specification.

Where plain end conduit is offered all switches and light fittings must be supplied with a permanent earth terminal for the connection of the earth wire.

Lugs held by switch fixing screws or self tapping screws will not be acceptable.

13.1 Telephone Installation

The Contractor shall allow for the complete installation of all conduits, outlet boxes, the communication service provider Distribution boards, sleeve pipes, etc., required for the telephone system as shown on the drawings.

The sizes of all telephone conduits are indicated on the drawings and must be installed in the floor slab. Galvanized steel draw-wires shall be installed in all conduits.

End boxes must consist of a 50mm x 100 mm x 100mm outlet box fitted with suitable blank cover plates, flush mounted 0,4m above floor level.

The communication service provider Distribution Board must consist of a 150mm x 600mm x 600mm metal box and hinged door with a 20mm thick wooden backboard. The board must be flush mounted, 1,37m above the floor.

13.2 Intercom Installation

The supply and installation of the intercom system is not included in this Contract.

The Contractor shall allow for the complete supply and installation of all conduits and outlet boxes required for the intercom installation as shown on the drawings.

The size of all conduits, boxes and mounting heights of the end boxes are indicated on the drawings. Galvanized steel draw-wires shall be installed in all conduits and the boxes fitted with suitable blank cover plates.

13.3 Power Trunking

The Contractor shall be responsible for the supply and installation of all power trunking complete with corner pieces, end pieces, junction pieces, supply conduits, cover plates and power outlets as specified and indicated on the drawings.

The power trunking must comply with SANS 61084. The Contractor must ensure that the power trunking is installed to satisfaction of the Employer's Electrical Engineer before commencing with the wiring of the power trunking.

[The method of installing and wiring of the power trunking must be specified in detail.]

14 POWER POINTS

Allow for the installation of power points and equipment as listed in the schedule, indicated on the drawings and described below:

14.1 ELECTRIC STOVE – replacement of the existing connections
14.2 ELECTRIC COOKING TOP – replacement of the existing connections
14.3 WATER HEATERS, ETC. – replacement of the existing connections

15 CABLES

The Contractor shall supply and completely install all distribution cables as indicated on the drawings, and listed in the Schedule of Cables.

The storage, transportation, handling and laying of the cables shall be according to first class practice, and the contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operations.

The cable-trenches shall be excavated to a depth of 0,9m deep below ground level and shall be 450mm wide for one to three cables, and the width shall be increased where more than three cables are laid together so that the cables may be placed at least two cable diameters apart throughout the run. The bottom of the trench shall be level and clean and the bottom and sites free from rocks or stones liable to cause damage to the cable.

The Contractor must take all necessary precautions to prevent the trenching work being in any way a hazard to

the personnel and public and to safeguard all structures, roads, sewage works or other property on the site from any risk of subsidence and damage.

In the trenches the cables shall be laid on a 75mm thick bed of earth and be covered with a 150-mm layer of earth before the trench is filled in.

All joints in underground cables and terminations shall be made either by means of compound filled boxes according to the best established practice by competent cable jointers using first class materials or by means of approved epoxy-resin pressure type jointing kits. Epoxy-resign joints must be made entirely in accordance with the manufacturer's instructions and with materials stipulated in such instructions. Low tension PVCA cables are to be made off with sealing glands and materials designed for this purpose which must be of an approved make. Where cables are cut and not immediately made off, the ends are to be sealed without delay.

The laying of cables shall not be commenced until the trenches have been inspected and approved. The cable shall be removed from the drum in such a way that no twisting, tension or mechanical damage is caused and must be adequately supported at intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after drawing in of the cables.

Backfilling (after bedding) of the trenches is to be carried out with a proper grading of the material to ensure settling without voids, and the material is to be tamped down after the addition of every 150mm. The surface is to be made good as required.

On each completed section of the laid and jointed cable, the insulation resistance shall be tested to approval with an approved "Megger" type instrument of not less that 500 V for low tension cables.

Earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such continuity conductors are to be stranded bare copper of a cross-sectional area equal to at least half that of one live conductor of the cable, but shall not be less than 4mm² or more than 70mm². A single earth wire may be used as earth continuity conductor for two or more cables run together, branch earth wires being brazed on where required.

15.1 LAYING, JOINTING AND MAKING OFF OF ELECTRICAL CABLES

[The requirements specified hereafter, are aimed essentially at high tension cable but are also valid for low tension cable, where applicable.]

1. The use of the term "Inspector", includes the engineer or inspector of the Department or an empowered person of the concerned supervising consulting engineer's firm.

2. No cable is to be laid before the cable trench is approved and the soil qualification of the excavation is agreed upon by the Contractor and inspector.

3. After the cable has been laid and before the cable trench is back-filled the inspector must ensure that the cable is properly bedded and that there is no undesirable material included in the bedding layer.

4. All cable jointing and the making off of the cables must only be carried out by qualified experienced cable jointers. Helpers of the jointers may not saw, strip, cut, solder, etc. The cable and other work undertaken by them must be carried out under the strict and constant supervision of the jointer.

5. Before the Contractor allows the jointer to commence with the jointing work or making off of the cable (making off is recognized as half a joint) he must take care and ensure:

5.1 That he has adequate and suitable material available to complete the joint properly and efficiently. Special attention must be given to ensure the cable ferrules and cable lugs are of tinned copper and of sufficient size. The length of the jointing lugs must be at least six times the diameter of the conductor,

5.2 That the joint pit is dry and that all loose stones and material are removed,

5.3 That the walls and banks of the joint pit are reasonable firm and free from loose material which can fall into the pit,

5.4 That the necessary coffer-dams or retaining walls are made to stop the flow of water into the joint pit,

5.5 That the joint pit is provided with suitable groundsheets so that the jointing work is carried out in clean conditions,

5.6 That the necessary tents or sails are installed over the joint pit to effectively avert unexpected rainfall and that sufficient light or lighting is provided,

5.7 That the necessary means are available to efficiently seal the jointing or cable end when an unexpected storm or cloudburst occurs, regardless of how far the work has progressed,

5.8 That the cables and other materials are dry, undamaged and in all respects are suitable for the joint work or making off,

5.9 That the heating of cable oil, cable compound, plumbers metal and solder is arranged that they are at the correct temperature when required so that the cable is not unnecessary exposed to the atmosphere and consequently the ingress of moisture (care must be taken of overheating)

Flow temperatures of cable oil and compound must be determined with suitable thermometers**.** Cable oil and compound must not be heated to exceed the temperatures given on the containers and precaution must be taken to ensure that the tin is not overheated in one position. The whole mass must be evenly and proportionally heated.

(Temperatures of solder and plumbers metal may be tested with brown paper (testing time: 3 seconds). The paper must colour slightly - not black or burnt).

6. Before the paper-insulated cables are joined, they must be tested for the presence of moisture by the cable jointers test. This consists of the insertion of a piece of unhandled insulated impregnated paper tape in warm cable oil heated to a temperature of 130 ± 5°C.

Froth on the surface of the oil is an indication that moisture is present in the impregnated insulation and the amount of the froth gives an indication of the moisture present.

7**.** If the cable contains moisture or is found to be otherwise unsuitable for jointing or making of the inspector is to be notified immediately and he will issue the necessary instruction to cope with the situation.

8. The joint or making off of paper insulated cables must not be commenced during rainy weather.

9. Once a joint is in progress the jointer must proceed with the joint until it is complete and before he leaves the site.

10. The jointer must ensure that the material and his tools are dry at all times, reasonably clean and absolutely free from soil.

11. Relating to the jointing of the cable the following requirements apply:

11.1 All jointing must be carried out in accordance with recognized and tried techniques and comply strictly with the instructions given by the supplier of the jointing kit.

11.2 The cables must be twisted by hand so that the cores can be joined according to the core numbers. If necessary the cable is to be exposed for a short distance to accomplish this. Under no circumstances may the cores in a joint be crossed so as to enable cores to be joined according to the core numbers. If it is not possible to twist the cables so that the preceding requirements can be met, then cores are to be joined in the normal way without any consideration of the core numbers.

11.3 Normally the cables will have profile conductors. The conductors shall be pinched with gas pliers to form a circular section, bound with binding wire so that they do not spread, and then tinned before jointing.

11.4 Jointing ferrules, the length of which are at least 6 times the diameter of the conductors, must be slid over the conductor ends to be joined and pinched tightly. Then they are soldered by means of the ladle process whilst being pinched further closed.

Use resin only as a flux. The slot opening in the ferrule must be completely filled, including all depressions.

Remove all superfluous metal with a cloth dipped in tallow. Work during the soldering process must be from top to bottom. Rub the ferrule smooth and clean with aluminium oxide tape after it has cooled down to ensure that there are not any sharp points or edges.

NB: The spaces between the conductor strands must be completely filled by soldering process and must be carried out quick enough to prevent the paper insulation from burning or drying out unnecessarily.

11.5 After the ferrules have been rubbed smooth and clean, they and the exposed cores must be treated with hot cable oil (110°C) to remove all dust and moisture. These parts are to be thoroughly basted with the oil.

11.6 The jointer must take care that his hands are dry and clean before the joint is insulated. Also the insulating tape which is to be used must first be immersed in warm cable oil (110°C) for a sufficient period to ensure that no moisture is present.

11.7 After the individual cores have been installed they must be well basted with hot cable oil and again after the applicable separator and/or belt insulation tape is applied before the lead joint sleeve is placed in position.

11.8 The lead joint sleeve must be thoroughly cleaned and prepared before it is placed on the cable and must be kept clean during the whole jointing process. Seal the filling apertures of the sleeve with tape until the sleeve is ready for compound filling.

11.9 The plumbing joints employed to solder the joint sleeve to the cable sheath, must be cooled off with tallow and the joint sleeve is to be filled with compound while it is still warm. Top up continuously until the joint is completely filled to compensate for the compound shrinkage.

11.10 The outer joint box must be clean and free from corrosion. After it has been placed in position it must be slightly heated before being filled with compound. Top up until completely full.

12. As far as cable end boxes are concerned the requirements as set out above are valid where applicable.

16. DISTRIBUTION BOARDS

In addition to clause 14 and clause 15 of Part 1 of this specification the following shall also be applicable to switchboards required for this service.

The Contractor shall supply and install the distribution boards as indicated on the drawings and listed in the distribution Board Schedule and single line diagram. All distribution boards shall comply with the quality specification in Part 3 of this specification, and be approved by the Employer's Electrical Engineer.

The Contractor shall allow for the refurbishment of the existing distribution boards as indicated on the drawings and distribution board's single line diagram.

17. OUTDOOR LIGHTING

The Contractor shall allow for the supply and installation of the light fittings, conduit and outlets for the general external lighting. The external lighting shall be controlled via a photocell / contactor arrangement with a by-pass switch at the position agreed on with the Client's Representative.

18. PHOTO-ELECTRICAL CELL

The Contractor shall allow for the supply and installation of a photo-electric cell with a 10A contact. The photocell shall operate a 15A AC3 Duty triple pole contactor with a by-pass switch.

19. SCHEDULE OF LIGHT FITINGS

The Departmental Quality Specification for the relevant luminaires must be included in Part 3 of the specification.

The light fittings and accessories are to be according to the quality specifications in Part 3 and shall be approved by the Employer.

The Contractor shall take delivery, safe storage and install all luminaires as indicated on the layout drawings. The Contractor must supply the luminaires or similar as shown in Table 4. The Contractor might be asked to give samples for each luminaire before installation for approval.

Table 4: Luminaires for use in the building

ITEM	DESCRIPTION	APPLICATION	TYPE	IMAGE
1.	• LED panel (1200x600 or 600x600) • Surface mounted on concrete and/or plaster board ceiling, recessed into ceiling grid. • Coated aluminium casing.	Offices, passages, store rooms	**D (35W)** **D1 (70W)**	
2.	• LED Linear • Surface mounted • 40W • 4508 Lm • 1200mm • 4000K	Indoor areas requiring open channel lighting: Library and offices in Block A	**B**	
3.	• Ingress protection - IP65 • Surface mounted vapour proof LED • Vandal resistant • 46W, 4000K	Covered car parks, Showers, Water closets, Store rooms, LV and Generator Rooms	**G**	
4.	• Ingress protection - IP65 • 13 W LED bulk head (Round or Square) • High pressure die-cast aluminium base • 4000K	Stairs, outdoor walkways	**H**	
5.	• 70W LED Flood complete with accessories • 11000 Lm • Wide beam • IP66 • IK07	Area lighting Security Lighting	**J**	
6.	• Ingress protection - IP65 • Rough Guard LED 53W (A), 9W (A1) • Back Entry with surface mounting bracket • Corrosion resistant, high pressure die-cast aluminium body • Polycarbonate (opaque/frosted) diffuser	Cells, Exercise Yard, Secure Off-loading Area, Cell office, kitchen and admittance Area	**A** **A1**	 

20. SCHEDULE OF DISTRIBUTION BOARDS

A clear labelled legend card shall be provided per each distribution board.

The distribution boards shall be as shown on the attached single line drawings.

The front panels of normal supply, standby power and no-break supply sections shall be painted in distinctive colours as follows:

Normal supply : Light Orange, colour B26 of SANS 1091.

Standby power : Signal Red, colour A11 of SANS 1091.
No-break supply: Dark Violet, colour F06 or Olive Green, Colour H05 of SANS 1091.

The single line diagrams are shown on the drawings. The Contractor is to make allowance for the supply and installation of the equipment indicated thereon.

The Table below shows the LV distribution panels. The distribution panels that will be re-used must be refurbished as per the single line layouts and the Contractor must issue a COC for each of these panels together with the new panels.

TABLE 2: ELECTRICAL PANELS SCHEDULE

	DB Name	Location	Color	Dimensions (mm)	Mounting	Status
1	**DB MAIN LV**	Block B - Basement Floor	Frame: Orange Normal: Orange Emergency: Red	Max. H: 1900 Max W: 2400 Max. D: 600	Floor Standing	New Panel
2	**DB BLOCK A**	Block A - Basement Floor	Frame: Grey Normal: Grey Emergency: N/A	Existing Panel to be re-used	Floor Standing	Refurbish/retrofit existing Panel as per Single Line
3	**DB BLOCK B**	Block B - Basement Floor	Frame: Grey Normal: Grey Emergency: N/A	Existing Panel to be re-used	Floor Standing	Refurbish/retrofit existing Panel as per Single Line
4	**DB BLOCK C**	Block C - Basement Floor	Frame: Orange Normal: Orange Emergency: Red	Existing Panel to be re-used	Floor Standing	Refurbish/retrofit existing Panel as per Single Line
5	**DB SECURITY**	Block B - Basement Floor	Frame: White Normal: N/A Emergency: Red	Existing Panel to be re-used	Wall Mounted - Recessed	Refurbish/retrofit existing Panel as per Single Line
6	**DB M1**	Block B - Basement Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 700 Max W: 600 Max. D: 250	Wall Mounted - Surface	New Panel
7	**DB M2**	Block B - Basement Floor	Frame: White Normal: White Emergency: N/A	Existing Panel to be re-used	Wall Mounted - Recessed	Refurbish/retrofit existing Panel as per Single Line
8	**DB A3**	Block A - Upper Ground Floor	Frame: White Normal: White Emergency: Red	Max. H: 800 Max W: 700 Max. D: 200	Wall Mounted - Recessed	New Panel
9	**DB M3**	Block B - Upper Ground Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 800 Max W: 700 Max. D: 250	Wall Mounted - Surface	New Panel
10	**DB A4**	Block A - Upper Ground Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 800 Max W: 700 Max. D: 250	Wall Mounted - Surface	New Panel
11	**DB B1**	Block B - Upper Ground Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 800 Max W: 700 Max. D: 250	Wall Mounted - Surface	New Panel

	DB Name	Location	Color	Dimensions (mm)	Mounting	Status
12	**DB HVAC**	Block B - Upper Ground Floor	Frame: Orange Normal: White Emergency: N/A	Max. H: 600 Max W: 600 Max. D: 250	Wall Mounted - Surface	New Panel
13	**DB C-G1**	Blcok C - Upper Ground Floor	Frame: White Normal: White Emergency: Red	Existing Panel to be re-used	Wall Mounted - Recessed	Refurbish/retrofit existing Panel as per Single Line
14	**DB C-G2**	Block C - Upper Ground Floor	Frame: White Normal: White Emergency: Red	Existing Panel to be re-used	Wall Mounted - Recessed	Refurbish/retrofit existing Panel as per Single Line
15	**DB M4**	Block B - First Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 900 Max W: 700 Max. D: 250	Wall Mounted - Surface	New Panel
16	**DB A5**	Block A - Upper Ground Floor	Frame: White Normal: White Emergency: Red	Max. H: 900 Max W: 700 Max. D: 200	Wall Mounted - Recessed	New Panel
17	**DB M5**	Block B - Second Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 900 Max W: 700 Max. D: 250	Wall Mounted - Surface	New Panel
18	**DB B2**	Block B - First Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 900 Max W: 700 Max. D: 250	Wall Mounted - Surface	New Panel
19	**DB A2**	Block A - Basement Floor	Frame: White Normal: White Emergency: Red	Max. H: 600 Max W: 600 Max. D: 200	Wall Mounted - Recessed	New Panel
20	**DB A6**	Block A - First Floor	Frame: White Normal: White Emergency: N/A	Existing Panel to be re-used	Wall Mounted - Recessed	Refurbish/retrofit existing Panel as per Single Line
21	**DB A1**	Block B - Basement Floor	Frame: White Normal: White Emergency: Red	Max. H: 600 Max W: 600 Max. D: 200	Wall Mounted - Recessed	New Panel
22	**DB B3**	Blcok B - First Floor	Frame: Orange Normal: White Emergency: Red	Max. H: 900 Max W: 700 Max. D: 250	Wall Mounted - Surface	New Panel
23	**SUB DB E**	Block B - Basement Floor	Frame: White Normal: N/A Emergency: Red	Existing Panel to be re-used	Wall Mounted - Surface	New Red Face Cover
24	**DB SERVER**	Block B - Basement Floor	Frame: White Normal: N/A Emergency: Red	Existing Panel to be re-used	Wall Mounted - Surface	New Red Face Cover

21. SUMMARY OF SWITCHGEAR AND CIRCUITS

The switchgear and circuits shall be as shown on the distribution boards single line diagrams.

22. METERING

Electronic three phase energy must be provided for the main LV panels, i.e. DB Mail LV, DB Block A, DB Block B and DB Block C.

All meter installations shall comply with the requirements of NRS 057, NRS 049 and relevant municipal electricity bylaws.

All meter boards shall be positioned so as to provide unrestricted access for the reading and maintenance of the meters and installation. Where possible, the location of the meter board should be selected taking into account the owners future plans for the development of the property.

All meter wiring shall be minimum 2.5mm2 stranded copper, including neutrals. For three phase meter installations, wiring may be color coded as follows:

- Red – Red phase
- White/Yellow – White phase
- Blue – Blue phase
- Neutral - Black

23. LIGHTNING PROTECTION SYSTEM

The building shall be properly earthed according to SANS 10313. The building shall be protected against lightning risk with a lightning protection system of Class III as per the results of the risk assessment performed. The risk assessment and the design of the lightning protection system comply with SANS 62305 part 2 and 3.

Earthing and lightning protection for the structure and buildings shall be provided by connecting the steel roof with insulated earth down conductors and copper earth rods as type A earth termination system.
Earthing for the electrical system shall be provided in accordance with SANS 0292.
The following will be earthed to the supplier's earth terminal:

- Distribution board
- Socket outlets with earth terminals
- Metal parts of cable ladders, trays or ducts
- Metal enclosures of electrical and electronic boards
- Earth bars
- Metal frames of luminaires
- Metal parts of electrical switches

24. ASSOCIATED SERVICES

The Contractor shall allow for attendance on specialist sub-contractors for the following systems: -

a.) Lightning Protection
b.) Telephone
c.) Security/Access control

The Contractor remains responsible for all conduit installation until service conduit is successfully installed therein.

25. BRACKETS AND FIXING DEVICES

Except where otherwise specified, all fixing devices shall be hot-dipped galvanised after manufacture.

All equipment, accessories and brackets to be mounted against concrete or brickwork shall only be installed by means of galvanised metal expanding anchor bolts.

PART 3: QUALITY SPECIFICATION FOR MATERIALS AND EQUIPMENT OF ELECTRICAL INSTALLATIONS

"Part 3: Quality specification for materials and equipment" manual of the Department of Public Works is applicable for this Contract and the manual can be obtained from the Department of Public Works.

[ONLY ITEMS OF MATERIAL applicable to the Contract must be included in Part 3]

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SECTION C1

C.1 CONDUIT AND CONDUIT ACCESSORIES

1. GENERAL

This section covers the requirements for conduit and conduit accessories for general installations under normal environmental conditions.

The type of conduit and accessories required for the service, i.e. whether the conduit and accessories shall be of the screwed type, plain-end type or of the non-metallic type and whether metallic conduit shall be black enamelled or galvanised, is specified in Part 2 of this specification. Unless other methods of installation are specified for certain circuits, the installation shall be in conduit throughout. No open wiring in roof spaces or elsewhere will be permitted.

The conduit and conduit accessories shall comply fully with the applicable SANS Specifications as set out below and the conduit shall bear the mark of approval of the South African National Standards.

(a) Screwed metallic conduit and accessories: SANS 1065 parts 1 and 2.

(b) Plain-end metallic conduit and accessories: SANS 1065 Parts 1 and 2.

(c) Non-metallic conduit and accessories: SANS 950

Bushes used for metallic conduit shall be brass and shall be provided in addition to lock nuts at all points where the conduit terminates at switchboards, switch-boxes, draw-boxes, etc.

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

All metallic conduits shall be manufactured of mild steel with a minimum thickness of 1,2mm for plain-end conduit and 1,6mm in respect of screwed conduit.

2. SCREWED CONDUIT

2.1. Conduits shall comply with SANS 1065 and shall bear the SANS mark.
2.2. All conduit shall be heavy gauge, welded or solid drawn, hot-dip galvanised or black enamelled, screwed tube.
2.3. Galvanised conduit shall be hot-dipped inside and outside in accordance with SANS 32 & 121.
2.4. All conduit ends shall be reamed and threaded on both sides and delivered with a coupling at one end and a plastic cap on the other end.

3. METAL CONDUIT ACCESSORIES

All metal conduit accessories shall be of malleable cast iron or pressed steel with brass bushes in accordance with SANS 1065. Alloy or pressure cast metal accessories or zinc base alloy fittings are not acceptable. All fittings whether galvanised or black enamelled, shall be fitted with brass screws.

4. CIRCULAR TYPE BOXES

4.1. The boxes shall be of the long spout pattern, manufactured of malleable cast iron or pressed steel and stove enamelled jet black or galvanised as required. The two cover fixing holes shall be diametrically opposite each other, drilled and tapped at 50mm centres.
4.2. Junction, draw-in and inspection boxes shall be of adequate size and shall be supplied with heavy gauge metal cover plates.
4.3. Boxes shall comply with SANS 1065.

5. SWITCH BOXES AND SOCKET OUTLET BOXES

5.1. All switch boxes and socket outlet boxes shall be manufactured of pressed galvanised steel of at least 1mm thickness. All boxes shall be fitted with the necessary lugs to suit standard flush mounted switches and socket outlets manufactured in accordance with SANS 1085.
5.2. Light switch boxes shall be 100 x 50 x 50mm with two 20mm knockouts on the sides, one 20mm knockout on the top, bottom, side and back.
5.3. Socket outlet boxes shall be 100 x 100 x 50mm with two 20mm knockouts each on the top, bottom, sides and back.
5.4. Switch and socket outlet cover plates shall comply with SANS 1084.

6. FLEXIBLE CONDUIT

Flexible steel conduit and adaptors shall comply with BS 731, part 1 where applicable. Flexible conduit shall be of galvanised steel construction and in damp areas of the plastic sheathed galvanised steel type. Flexible conduit shall only be used as specified and shall then be installed in accordance with par. 5.4.4 of SANS 10142.

7. PLAIN-END METALLIC CONDUIT

7.1. As an alternative to the threaded conduit, plain-end (unthreaded) metallic conduit with accessories may be used under the conditions stated in the Department's standard specification for "INSTALLATION AND TERMINATION OF CONDUITS AND CONDUIT ACCESSORIES", par. 3 of Section Bl.
7.2. Unthreaded conduit shall be manufactured of mild steel with a minimum thickness of 1,2mm and shall comply with SANS 1065.
7.3. Bending and setting of conduit shall be done with the correct apparatus recommended by the manufacturer of the conduit.
7.4. The Contractor or Supplier shall be responsible for obtaining the approval of local authorities for the use of this system.
7.5. All conduit and accessories used in areas within 50 km of the coast shall be hot-dip galvanised to SANS 32 & 121. In inland areas electro-galvanised or cadmium-plated accessories will be accepted.

8. NON-METALLIC CONDUIT

Non-metallic conduit shall comply fully with SANS 950 and shall be installed in accordance with Appendix C of the same specification as well as the Department's standard specification for "INSTALLATION AND TERMINATION OF CONDUITS AND CONDUIT ACCESSORIES", par. 4 of Section Bl.

9. EARTH CLAMPS

Earth clamps shall consist of copper strips at least 1,2mm thick and not less than 12mm wide secured with a brass bolt, nut and washer and shall be so constructed that the clamp fit firmly to the conduit without any additional packing.

SECTION C.2

C.1 WIRING CHANNELS, UNDERFLOOR DUCTING AND POWER SKIRTING

1. WIRING CHANNELS

1.1 GENERAL

1.1.1 The channels shall be manufactured of rolled sheet steel.

1.1.2 The minimum thickness of the sheet steel shall be:

(a) 1,6mm for ribbed channels with a maximum width of 42mm.

(b) 2,5mm for unribbed channels with a maximum width of 42mm.

(c) 1,2mm for channels with a width in excess of 42mm.

1.1.3 The channels shall be finished as follows:

(a) In coastal areas (under all installation conditions)	Hot-dip galvanised to SANS 32 & 121 or epoxy powder coated
(b) Cast in concrete	Pre-galvanised
(c) False ceiling voids	Pre-galvanised
(d) Vertical building ducts coated	Hot-dip galvanised to SANS 32 & 121 or epoxy powder
(e) Surface mounted in plant rooms, substations, service tunnels, basements	Epoxy powder coated or electro galvanized
(f) Damp areas, exposed to weather underground runs in contact with earth	Hot-dip galvanised to SANS 32 & 121 or epoxy powder coated
(g) Undercover industrial applications	Hot-dip galvanised to SANS 32 & 121 or epoxy powder coated

1.1.4 The above-mentioned finishes shall apply unless specified to the contrary or approved - by the Department. Hot-dip galvanised ducts shall be cold galvanised at all joints. sections that have been cut and at places where the galvanising has been damaged. Powder coated ducts shall likewise be touched up at joints, cuts and damaged portions using methods recommended by the manufacturer of the channels.

1.2 Cover Plates

1.2.1 All channels shall be supplied with cover plates.

1.2.2 Channels up to 127mm wide shall have snap-in cover plates of metal or PVC.

1.2.3 For channels wider than 127mm only metal cover plates shall be used.

1.2.4 The finish of steel cover plates shall be the same as the finish of the channels.

1.3 Accessories

All accessories i.e. hangers, brackets etc. shall be purpose made and in general have the same finish asthe channels.

1.4 Wiring Supports

Wiring supports shall be provided in order to prevent the wires falling out when cover plates are removed.

2. UNDERFLOOR DUCTING

2.1 General

2.1.1 The dueling shall be manufactured of 2mm thick rolled sheet steel or rectangular tubing. Galvanised steel shall be used or shall be epoxy coated after manufacture.

2.2 Outlets

2.2.1 Outlets shall be provided on a modular basis in the dueling to accommodate pedestal or recessed socket units. Tapped holes shall be provided to fix the pedestal units to the dueling.

2.2.2 Draw boxes at junctions of perpendicular ducts shall have removable barriers for wiring and shall be provided with a heavy gauge cover plate.

2.3 Pedestals

2.3.1 Pedestals shall be manufactured of die-cast aluminium or pressed steel.

2.3.2 The finish of pedestals shall be epoxy powder coating of an approved colour.

2.4 Kitchen Pedestals

2.4.1 Kitchen pedestals shall be manufactured of 2mm thick stainless steel grade 316 all round.

2.4.2 The assembly shall include base plate of minimum 2mm SS316 with 90º bent up sides to fit inside pedestal tube. Top of the pedestal tube to be welded closed all round and water tight.

2.4.3 All welds to be pacified full length welds. Grind and polish back all welds. Welds to be water tight.

2.4.4 Base plate shall be fixed to floor slab with 4 X M8 X 40mm rawl bolts (with washers) placed in corners of base plate. Rivet pedestals to base plate with 8 X 5mm aluminium pop rivets.

3. POWER SKIRTING

3.1 General

3.1.1 The channel and cover shall be manufactured of 1mm thick rolled sheet steel.

3.1.2 The channel and cover shall be epoxy coated after manufacture.

3.2 Outlets

3.2.1 Outlets pre-punched on a modular basis shall be provided to accommodate socket outlets or future socket outlets.

3.2.2 In addition to standard lengths, covers of 250mm length shall be provided for installation on building module lines.

SECTION C3

C.3 CABLE TRAYS AND LADDERS

1. METAL CABLE TRAYS

Metal cable trays shall be manufactured from perforated rolled steel. Metal trays manufactured to the following standards shall be used:

(a)	Less than 150mm wide	1,2mm minimum thickness with 12mm minimum return
(b)	150mm to 457mm	1,2mm minimum thickness with 19mm minimum return
(c)	460mm to 610mm (Heavy duty)	2,5mm minimum thickness with 76mm return

2. CABLE LADDERS

2.1 Metal cable ladders shall consist of a 76mm high side rail of 2mm minimum thickness. Cross pieces shall be spaced at maximum intervals of 250mm. Where cables of $10mm^2$ or smaller are installed on cable ladders, the spacing of the cross pieces shall be 125mm. Cables shall be clamped in position by means of purpose-made cable clamps that fit into the cross pieces.

2.2 Cable ladders consisting of slotted metal rails which accommodate plastic or metal cable binding bands may be used in vertical cable runs against walls, etc. These cable ladders will be considered in horizontal cable runs for small cables for communication and control wiring upon theprior approval of the Department.

2.3 Purpose made cable trays consisting of 6mm angle iron and 6 x 40mm minimum cross pieces are acceptable in industrial applications. Cross pieces shall be welded in pairs at 250mm maximum centre-to-centre intervals. The pairs shall be spaced approx. 10mm apart to allow cable clamps or metallic binding bands to affix the cables to the tray.

3. PLASTIC CABLE TRAYS

Rigid un-plasticine PVC cable trays complying with the following standards may be used if specified in the Detail Technical Specification:

The up stands of trays listed in (a) and (b) shall not be perforated and the top of the up stand shall be smooth. The same cable tray type shall be used in long parallel tray runs.

4 FINISHES

Metal cable trays and ladders shall be finished as follows:

(a) In coastal areas	Hot-dip galvanised to SANS 32 & 121 or epoxy powder coated
(b) False ceiling voids	Electro-galvanised baked enamel power coated
(c) Vertical building ducts	Hot-dip galvanised to SANS 32 & 121 or baked enamel epoxy powder coated
(d) Plant rooms, substations, service tunnels	Electro-galvanised baked enamel or basements epoxy powder coated
(e) Damp areas, exposed to weather	Hot-dip galvanised to SANS 32 & 121 baked enamel or epoxy powder coated
(f) Undercover industrial application	Hot-dip galvanised to SANS 32 & 121 or baked enamel epoxy powder coated

The above-mentioned finishes shall apply unless specified to the contrary in the Detail Technical Specification. Hot-dip galvanised trays and ladders shall be cold galvanised at all joints, sections that have been cut and at places where the galvanising has been damaged. Powder coated or enamel painted trays and ladders shall likewise be touched up at joints, cuts and damaged portions using spray canisters recommended by the manufacturer of the trays and ladders.

5. ACCESSORIES

Horizontal and vertical bends, T-junctions and cross connections shall be supplied by the Contractor. The dimensions of these connections shall correspond to the dimensions of the linear sections to which they are connected. The radius of all bends shall be 1m minimum. The inside dimensions of horizontal angles or connections shall be large enough to ensure that tine allowable bending radius of the cables is not exceeded. Sharp angles shall be 45°mitred.

SECTION C4

C.4 PVC-INSULATED CABLES 600/1 000 V GRADE

1. GENERAL

This section covers the requirements for PVC-insulated cables for general installations under normal environmental conditions.

2. CONSTRUCTION

2.1 Cables shall be manufactured in accordance with SANS 1507, shall come only from fresh stocks, and shall be constructed as follows:

(a) Unarmoured cables PVC-insulated/PVC-sheathed

(b) Armoured cables PVC-insulated/PVC-bedded/armoured/black extruded PVC outer sheath

(c) Single core cables PVC-insulated/unsheathed

2.2 The conductors shall be of high conductivity annealed stranded copper and the cores may be shaped or circular.

2.3 The insulation shall be general purpose PVC, 600/1 000V Grade.

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

2.5 Where armouring is specified it shall consist of one layer of galvanised steel wire in the case of multi-core cables and nonmagnetic metallic wire in the case of single core cables. Aluminium strip or tape armouring is not acceptable.

2.6 Where specified, an earth continuity conductor shall be provided in the armouring in accordance with SANS 1507.

3. PVC-SHEATHED ALUMINIUM-COVERED CABLES

3.1 Aluminium-covered cables shall comprise PVC-insulated copper conductors protected by an aluminium foil tape screen and a PVC sheath.

3.2 Cable ends shall be made off with compression glands fitted with a neoprene ring to seal the end.

3.3 Aluminium sheathed cable shall be installed on surface only using matching saddles installed at suitable intervals to prevent sagging.

3.3 Where exposed to sunlight, the cable shall have a stabilised black outer sheath.

4. LENGTHS

Cable shall be manufactured and supplied in one length to the lengths specified unless these lengths exceed a standard drum length in which case a ruling shall be obtained from the Department.

5. TESTS

At the option of the Department, acceptance tests shall be carried out on production runs of the cable inaccordance with SANS 1507.

SECTION C5

C.5 GLANDS FOR PVC-INSULATED CABLES

1. Glands to be used for terminating PVC/PVC/SWA/PVC cables shall be of the adjustable type.
2. Glands shall be suitable for general purpose 600/1 000 V Grade cable with steel armouring.
3. The glands shall be made of nickel-plated cadmium plated or in coastal area bronze or brass.
4. The glands shall consist of a barrel carrying a cone bush screwed into one end and a nickel-plated brass nipple carrying a nickel-plated brass or a heavy galvanised steel locknut screwed into the other end. The galvanising shall comply with SANS 32 & 121.
5. Non-watertight glands must be easily converted to watertight glands by means of a waterproofing shroud and inner seal kit. On the cable entry side of the barrel a concave groove shall be provided to accommodate the top rim of the waterproofing shroud.
6. The shrouds shall be made of non-deteriorating neoprene or other synthetic rubber, and shall be resistant to water, oil and sunlight. The shrouds shall fit tightly around the glands and cable.
7. Glands shall be provided with ISO threads and shall be suitable for the specified cable sizes.
8. Flameproof glands shall comply with SANS 808, Groups 1, 2a and 2b.
9. Suitable accessories shall be provided with glands to be used on ECC armoured cables to facilitate a bolted lug connection of the earth continuity conductors. Grooves cut into the barrel or cone bush to accommodate the earth continuity conductors are not acceptable.
10. For unarmoured cables the cone bush and compression ring of the gland shall be replaced with a synthetic rubber compression bush and ring to provide the required grip on the outer sheath of the cable.

SECTION C10

C.10 LIGHT SWITCHES

1. GENERAL

This section covers the requirements for switches for use in general installations under normal environmental conditions.

2 FLUSH AND SURFACE MOUNTED SWITCHES

2.1 All switches shall be suitable for mounting in 100 x 50 x 50mm boxes shall comply with SANS 1663 and shall bear the SANS mark.

2.2 Switches shall be of tumbler operated microgap type rated at 16A, 220/250V.

2.3 Switches shall have protected terminals for safe wiring.

2.4 Contacts shall be of silver material.

2.5 On multi-lever switches, it shall be possible to individually change any of its switches.

2.6 The yoke strap shall be slotted to allow for easy alignment.

2.7 The covers of surface mounted switches shall have toggle protectors.

2.8 Where light switches are installed in partitions, they shall, where possible, be of the special narrow type intended for installation into the mullions.

3. WATERTIGHT SWITCHES

3.1 Watertight switches shall be of the microgap type suitable for surface mounting and shall bear the SANS mark.

3.2 The housing shall be of galvanised cast iron or die cast aluminium with watertight cover plate and toggle.

3.3 The switch shall have a porcelain base and a quick acting spring mechanism and shall be rated at 16A, 220/250V.

3.4 The ON/OFF position shall be clearly marked on the switch housing.

4. CEILING SWITCHES

4.1 Ceiling switches shall be rated at 10A. 220/250V and shall be suitable for ceiling mounting on a round conduit box.

4.2 The switch shall be made of high impact strength nylon material.

4.3 Adequate space shall be provided within the unit for ease of wiring.

4.4 The switch colour shall be white and shall be fitted with a nylon cord 1.25m long.

5. COVER PLATES

5.1 Cover plates shall be finished in ivory coloured baked enamel, anodised bronze or aluminium unless otherwise specified.

5.2 Cover plates shall overlap the outlet to cover wall imperfections.

5.3 Cover plates shall comply with SANS 1084.

SECTION C11

C.11 UNSWITCHED AND SWITCHED SOCKET-OUTLETS

1. GENERAL

This section covers the requirements for unswitched and switched socket-outlets for use in general installations under normal environmental conditions.

2. FLUSH AND SURFACE MOUNTED SWITCHED SOCKETS

2.1 All switched socket-outlets shall be suitable for mounting in 100 x 100 x 50mm or 100 x 50 x 50mm boxes, shall comply with SANS 164.

2.2 Switches shall be of the tumbler operated microgap type rated at 16A, 220/250V.

2.3 Terminals shall be enclosed for safe wiring.

2.4 Contacts shall be of silver material.

2.5 Safety shutters shall be provided on live and neutral openings.

2.6 The yoke strap shall be slotted to allow for easy alignment

2.7 The covers of surface mounted switched socket shall have toggle protectors.

2.8 Miniature circuit-breakers shall be used in lieu of a switch where specified.

2.9 Where 13A flat pin switched socket-outlets are specified, these shall comply with BS 1363.

3. WATERTIGHT SWITCHED SOCKETS

3.1 The housing of watertight switched sockets shall be of galvanised cast iron or die cast aluminium with watertight machined joints.

3.2 The switch shall have a porcelain base and a quick-acting spring mechanism and shall be rated at 16A. 220/250V.

3.3 The ON/OFF positions shall be clearly marked on the switch housing.

3.4 The socket openings shall be rendered watertight by means of a gasketed cover plate which is screwed onto the body of the unit. The cover plate shall be secured to the body of the unit by means of a chain.

4. UNSWITCHED SOCKET-OUTLETS

4.1 Unswitched socket-outlets shall only be used in the case of 5A, 220/250V, 3-pin socket-outlets intended for the connection of recessed light fittings installed in false ceilings.

4.2 The socket-outlets shall have shuttered live and neutral openings.

4.3 The socket-outlets shall be suitable for installation in pre-punched wiring channels. deep round conduit boxes, 100 x 50 x 50mm or 100 x 100 x 50mm boxes.

5. THREE-PHASE SWITCHED SOCKET-OUTLETS

5.1 Three-phase switched socket-outlets shall have 5 pins, one for each phase, neutral and earth. The current rating shall be as specified in the Detail Technical Specification.

5.2 The units shall be interlocked to prevent switching on if the plug top is not installed.

5.3 The units shall be supplied complete with plug top.

5.4 The live terminals shall be shrouded and shall be completely safe when the plug top is removed.

5.5 Samples shall be submitted to the Department for approval prior to the installation.

SECTION C12

C.12 LUMINAIRES FOR INTERIOR AND EXTERIOR APPLICATIONS

C.12.1 LED LUMINAIRES FOR INTERIOR APPLICATIONS

1. SCOPE

This specification covers the requirements for LED luminaires for general indoor use. The types of luminaires covered are open-channel, industrial, decorative and recessed types and includes luminaires with one or more lamps with standard wattage ratings as specified in the project specification. Luminaires for use in special applications or atmospheres are not included in this specification.

2. GENERAL

2.1 All Light fittings installed for this project is to be of the LED type, unless otherwise stated.

2.2 To promote work creation in South Africa, the luminaire should preferably be manufactured within the Republic of South Africa and should have a local content of at least 50%.

2.3 If the luminaire offered is of foreign origin, full specifications on technical performance and quality must be submitted and full reasons shall be given why the unit had to be imported.

2.4 A sample luminaire shall be provided for evaluation and approval by the Electrical Engineer prior to installation.

2.5 Luminaires, associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear, diffusers, mounting brackets, etc. and shall be delivered to site in a protective covering.

3. STANDARDS

The following international standard specifications and South-African Bureau of Standards shall apply to the LED luminaire specification:

SANS 475	Luminaires for interior lighting, street lighting and floodlighting – Performance and requirements
SANS 10114-1	Interior lighting part 1: Artificial lighting of interiors
SANS 10114-2	Interior lighting part 2: Emergency lighting
SANS 60598-1	Luminaires part 1: General requirements and tests
SANS 60598-2.1	Luminaires part 2: Particular requirements section 1 – Fixed general purpose luminaires.
SANS 60598-2.2	Luminaires part 2: Particular requirements section 2 – Recessed luminaires.
SANS 60598-2.3	Luminaires part 2: Particular requirements section 3 – Luminaires for road and street lighting.
SANS 60598-2.5	Luminaires part 2: Particular requirements section 5 – Flood lighting.
SANS 61347-1 to 13	Lamp control gear
SANS 62031	LED modules for general lighting – Safety specifications
SANS 62384	DC or AC supplied electronic control gear for LED modules – Performance requirements.
SANS 62560	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Safety specification.
SANS 62612	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Performance requirements
EN 55015	Limits and methods of measurement of radio disturbance of electrical lighting or equipment.
EN 61000-3.2	Electromagnetic compatibility (EMC) limits for harmonic current emissions.

EN 61000-3.3	Electromagnetic compatibility (EMC) limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
EN 61547	Equipment for general lighting purposes: EMC immunity requirements.
IEC-EN 62471	Photo biological safety of lamps and lamp systems for LEDs
IES LM-79-08	Approved method: Electrical and photometric measurement of solid-state lighting products.
IES LM-80	Approved method: Measuring lumen maintenance of LED light sources.
SANS VC 8031:	Coatings applied by the powder-coating process.
SANS 783:	Baked enamels.
SANS 10142:	The wiring of Premises

Any standard referred to in the above specifications.

4. PHYSICAL AND ENVIRONMENTAL REQUIREMENTS

4.1 AREAS OF APPLICATION: The luminaires are intended for standard indoor use in buildings under the control of the Department of Public Works.

4.2 FIXING: The luminaires shall be suitable for mounting in or against ceilings as described in the project specification.

4.3 ENVIRONMENTAL: The luminaire must be able to withstand an ambient temperature of 35°C. Storage temperature of this luminaire should be able to handle -40°C < T < 60°C.

To this end internal electrical and mechanical components shall not be allowed to exceed their maximum temperature ratings of 75°C. Test reports from an independent authorised testing facility proving this requirement shall be made available on request.

4.4 SAFETY: The luminaire shall bear the SANS 1464 safety mark.

4.5 NOISE: The noise level emitted from the luminaire shall be kept as low as possible. Drivers/electronic components shall therefore fully comply with the latest edition of SANS 55015.

5. GENERAL TECHNICAL REQUIREMENTS

5.1 GENERAL

5.1.1 The luminaire shall be suitable for operation with mid-power LEDs. **Note that no LED tubes are allowed to be used**.

5.1.2 Colour rendering (Ra) shall be not less than 80 and lumen depreciation of not more than 30% L70 at 50 000 hours @ Tq 25°C. Colour temperature of the LED lamp shall be 4000K, unless otherwise stated.

5.1.3 The luminaire shall be suitable for operation on a 230V single phase 50Hz mains supply.

5.1.4 The luminaire shall be marked with identification labels stating the brand name and model and shall bear the SANS approval mark.

5.1.5 The Department reserves the right to have samples of luminaires offered tested by the SANS for compliance with SANS 1119. If a sample luminaire is found not to comply with SANS 1119 the cost of such tests shall be borne by the Tenderer.

5.2 CONSTRUCTION

5.2.1 A luminaire shall consist of a ventilated body manufactured of cold rolled sheet steel not less than 0,8mm thick, suitably braced or stiffened to prevent distortion. The body shall be of sufficient strength for the mounting of the entire luminaire.

5.2.2 The luminaire shall be designed to accommodate the control gear, wiring, lamp holders and, where applicable, the diffuser and reflectors. It shall be possible to reach the control gear without disconnecting wiring or removing the luminaire.

5.2.3 Except for mounting holes and/or slots and the required openings in air-return luminaires. The back of the body channel shall be closed over the full length of the luminaire.

5.2.4 Suitable knockouts shall be provided in the rear of the luminaire body for wire entry.

5.2.5 All components, including screws, bolts and nuts utilised in the construction of the luminaire or fixing of its components, shall be corrosion proof. Cadmium plated or stainless-steel materials are preferred.

5.3 INTERNAL WIRING

5.3.1 Luminaires shall be completely wired internally. Conductors shall be protected with grommets where they pass through holes in the body.

5.3.2 The wiring shall be totally metal enclosed to prevent any possible contact with live components while changing lamps.

5.3.3 The conductor insulation shall be rated to withstand the temperature inside the luminaire body without deterioration.

5.3.4 The wiring shall terminate on a suitable terminal block having screw down plates bearing on the wires. Terminals where screws bear down directly on wires will not be acceptable.

5.3.5 An earth terminal, welded to the luminaire body, shall be provided. To ensure good earth continuity the earth terminal shall not be spray painted. The earth conductor shall be connected to this terminal by means of a crimped lug.

5.4 CONTROL GEAR

5.4.1 The driver shall comply with IEC 61347-1 and IEC 61347-2B as applicable and shall be suitable for operation on 230V +-10%, 50Hz single phase system and it must be insured that harmonics filter is provided as per SANS 61000-3-2. The drivers and LED circuitry shall be protected against lighting and power surges. Suitable surge arrestors with a 10kA rating shall be provided for indoor installations and 20kA for outdoor installations.

5.5 CAPACITORS

Power factor capacitors shall be supplied to correct the power factor to at least 0.95 of higher.

6. PHOTOMETRIC DATA

Photometric data sheets of the luminaire as prepared by a laboratory that complies with SANS requirements shall be submitted with the luminaire.

7. TECHNICAL INFORMATION

The Tenderer shall include full technical particulars regarding the luminaire offered with the tender.

8. CHANNEL LUMINAIRE

8.1 Channel luminaires shall consist of a ventilated, enclosed channel body with one or more lamps as specified in the project specification. The channel body shall house the driver, terminals and internal wiring.

8.2 Provision shall be made for the addition of reflector wings and/or diffusers.

8.3 Three sets of mounting slots and knock-outs suitable for mounting onto standard round conduit boxes and/or 20mm diameter conduit pendant rods, shall be provided in the rear of the channel, onein the centre and one approximately one sixth from each end.

8.4 A knockout suitable for a 20mm diameter conduit entry shall be provided at each end of the channel. The distance between the back of the luminaire and centre of the knockout shall be approximately 25mm.

8.5 The knockouts shall be positioned on the centre line of the channel.

8.6 The body channel shall incorporate a removable cover acting as a reflector, manufactured of cold rolled steel, not less than 0,8mm thick, designed and mounted to completely cover the interior of the body channel and its contents and extending over the full length of the luminaire up to the lamp holders.

8.7 The reflector shall be firmly held in position with a latching device consisting of knurled, coin slot, captive screws. Plastic, used as a spring mechanism, is not acceptable as a fixing device for reflectors. The action of the latching device shall not deteriorate due to use and/or ageing.

9. INDUSTRIAL LUMINAIRES

9.1 Industrial type luminaires shall consist of a basic channel luminaire fitted with detachable side

reflectors.

9.2 The reflectors shall be manufactured of cold rolled steel, not less than 0,8mm thick.

9.3 The reflectors shall be designed to improve the downward light output ratio and decrease the upward light output ratio to a value of less than 2%.

10. DECORATIVE LUMINAIRES

10.1 Decorative luminaires shall incorporate an injection moulded prismatic acrylic diffuser or a high-grade optical reflector covering the entire reflecting surface of the luminaire.

10.2 The diffuser shall be hinged or easily removable for maintenance and lamp replacement. Optical reflectors shall be hinged.

10.3 Decorative luminaires with diffusers shall be constructed and so installed to prevent the ingress of dust and insects.

10.4 Highly polished reflectors shall be protected and carefully handled and to prevent fingerprints showing on the surface.

10.5 Surface mounted luminaires on suspended ceilings shall be arranged to suit the grid and shall fit tightly against the ceiling.

11. RECESSED LUMINAIRES

11.1 Recessed luminaires shall be suitable for mounting in the ceiling structure specified in the project specification.

11.2 The attachment of the prismatic diffuser or reflector shall be similar to that specified in paragraph 10 above.

11.3 The diffuser or reflector shall fit flush with the ceiling and the only visible portion shall be the reflector or diffuser.

11.4 Should the luminaire be so designed that a surrounding frame is visible, then this frame shall be manufactured of anodised aluminium. The frame shall form a neat trim with the ceiling. The comers of the surrounding frame shall be mitred and reinforced.

12. LOW-BRIGHTNESS LUMINAIRES

12.1 The luminaire shall be provided with an aluminium louver with V-shaped longitudinal vanes and extruded stepped cross-shielding plates.

12.2 Louvers shall be constructed from high purity aluminium (99.98%), chemically brightened and anodised.

12.3 The total Light Output Ratio (LOR) shall be 62% or better. In the plane between 60 and 90 (from the vertical), the LOR shall be below 3%.

13. LOW GLARE LUMINAIRES

13.1 The luminaire shall be provided with a die-formed, bright anodised high-purity aluminium (99.98%) louver with parabolic reflecting surfaces in both directions.

13.2 The total LOR shall be 62% or better. In the plane between 60 and 90(from the vertical), the LOR shall be less than 1.3%

14. LUMINAIRES FOR USE IN AREAS WITH VISUAL DISPLAY TERMINALS

14.1 The luminaire shall have anodised specular louvers to provide the brightness control required for this type of application.

14.2 At angles between 60 and 90 (from the vertical) the luminance shall not exceed 200cd/m2.

14.3 At the above angles the LOR shall be less than 0.6%. At angle between the vertical and 60 the LOR shall be 61% or better

SECTION C12.3

C12.3 LED BULKHEAD LUMINAIRES FOR INTERIOR AND EXTERIOR APPLICATIONS

1. SCOPE

This specification covers the requirements for LED bulkhead type luminaires for general indoor and outdoor use. The types of luminaires covered are decorative round, rectangular or square surface-mounted and recessed types and include luminaires with one or more lamps with standard wattage ratings as specified in the project specification. Luminaires for use in special applications or atmospheres are not included in this specification.

2. GENERAL

2.1 All Light fittings installed for this project is to be of the LED type, unless otherwise stated.

2.2 To promote work creation in South Africa, the luminaire should preferably be manufactured within the Republic of South Africa and should have a local content of at least 50%.

2.3 If the luminaire offered is of foreign origin, full specifications on technical performance and quality must be submitted and full reasons shall be given why the unit had to be imported.

2.4 A sample luminaire shall be provided for evaluation and approval by the Electrical Engineer prior to installation.

2.5 Luminaires. associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear, diffusers, mounting brackets, etc. and shall be delivered to site in a protective covering.

3. STANDARDS

The following standard specifications of the South-African National Standards shall apply to this LED luminaire specification:

3.1	SANS 475:	Luminaires for interior lighting, street lighting and floodlighting – Performance and requirements
3.2	SANS 10114-1:	Interior lighting part 1: Artificial lighting of interiors.
3.3	SANS 10114-2**:**	Interior lighting part 2: Emergency lighting.
3.4	SANS 60598-1:	Luminaires part 1: General requirements and tests.
3.5	SANS 60598-2.1:	Luminaires part 2: Particular requirements section 1 – Fixed general purpose luminaires.
3.6	SANS 60598-2.2:	Luminaires part 2: Particular requirements section 2 – Recessed luminaires.
3.7	SANS 60598-2.3:	Luminaires part 2: Particular requirements section 3 – Luminaires for road and street lighting.
3.8	SANS 60598-2.5:	Luminaires part 2: Particular requirements section 5 – Flood lighting.
3.9	SANS 61347-1 to 13:	Lamp control gear.
3.10	SANS 62031:	LED modules for general lighting – Safety specifications.
3.11	SANS 62384:	DC or AC supplied electronic control gear for LED modules – Performance requirements.
3.12	SANS 62560:	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Safety specification.
3.13	SANS 62612:	Self-ballasted LED lamps for general lighting services with supply

		voltages > 50V – Performance requirements.
3.14	EN 55015:	Limits and methods of measurement of radio disturbance of electrical lighting or equipment.
3.15	EN 61000-3.2:	Electromagnetic compatibility (EMC) limits for harmonic current emissions.
3.16	EN 61000-3.3:	Electromagnetic compatibility (EMC) limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
3.17	EN 61547:	Equipment for general lighting purposes: EMC immunity requirements.
3.18	IEC-EN 62471:	Photo biological safety of lamps and lamp systems for LEDs.
3.19	IES LM-79-08:	Approved method: Electrical and photometric measurement of solid-state lighting products.
3.20	IES LM-80:	Approved method: Measuring lumen maintenance of LED light sources.
3.21	SANS VC 8031:	Coatings applied by the powder-coating process.
3.22	SANS 783:	Baked enamels.
3.23	SANS 10142:	The wiring of Premises

Any standard referred to in the above specifications.

4. PHYSICAL AND ENVIRONMENTAL REQUIREMENTS

4.1 AREAS OF APPLICATION: The luminaires are intended for standard indoor and exterior use in buildings under the control of the Department of Public Works.

4.2 FIXING: The luminaires shall be suitable for mounting against ceilings or walls as described in the project specification.

4.4 ENVIRONMENTAL: The luminaire must be able to withstand an ambient temperature of 35°C. Storage temperature of this luminaire should be able to handle -40°C < T < 60°C.

4.5 To this end internal electrical and mechanical components shall not be allowed to exceed their maximum temperature ratings of 75°C. Test reports from an independent authorised testing facility proving this requirement shall be made available on request.

4.4 SAFETY: The luminaire shall bear the SANS 1464 safety mark.

4.5 NOISE: The noise level emitted from the luminaire shall be kept as low as possible. Drivers/electronic components shall therefore fully comply with the latest edition of SANS 55015.

5. GENERAL TECHNICAL REQUIREMENTS

5.1 GENERAL

5.1.1 The luminaire shall be suitable for operation with mid-power LEDs. **Note that no LED tubes are allowed to be used**.

5.1.2 Colour rendering (Ra) shall be not less than 80 and lumen depreciation of not more than 30% L70 at 50 000 hours @ Tq 25°C. Colour temperature of the LED lamp shall be 4000K, unless otherwise stated.

5.1.3 The luminaire shall be suitable for operation on a 230V single phase 50Hz mains supply.

5.1.4 The luminaire shall be marked with identification labels stating the brand name and model and shall bear the SANS approval mark.

5.1.5 The Department reserves the right to have samples of luminaires offered tested by the SANS for compliance with SANS 1119. If a sample luminaire is found not to comply with SANS 1119 the cost of such tests shall be borne by the Tenderer.

5.2 CONSTRUCTION

5.2.1 A luminaire shall consist of a ventilated body manufactured from die-cast aluminium. The body shall be of sufficient, strength for the mounting of the entire luminaire.

5.2.2 The luminaire shall be designed to accommodate the control gear, wiring, lamp holders, the diffuser and reflectors. It shall be possible to reach the control gear without disconnecting wiring or removing the luminaire.

5.2.3 Except for mounting holes and/or slots, the back of the body shall be closed over the full extent of the luminaire.

5.2.4 Suitable knockouts shall be provided in the rear of the luminaire body for wire entry.

5.2.5 All components, including screws, bolts and nuts utilised in the construction of the luminaire or fixing of its components, shall be corrosion proof. Cadmium plated, or stainless-steel materials are preferred.

5.2.6 The luminaire shall, as an option, be available with a high-pressure die-cast aluminium skirt, which shall be designed in such a way that it covers the base completely when mounted. The skirt shall be mounted onto the body by means of at least three screws

5.3 INTERNAL WIRING

5.3.1 Luminaires shall be completely wired internally. Conductors shall be protected with grommets where they pass through holes in the body.

5.3.2 The wiring shall be totally metal enclosed to prevent any possible contact with live components while changing lamps.

5.3.3 The conductor insulation shall be rated to withstand the temperature inside the luminaire body without deterioration.

5.3.4 The wiring shall terminate on a suitable terminal block having screw down plates bearing on the wires. Terminals where screws bear down directly on wires will not be acceptable.

5.3.5 An earth terminal, welded to the luminaire body, shall be provided. To ensure good earth continuity the earth terminal shall not be spray painted. The earth conductor shall be connected to this terminal by means of a crimped lug.

5.5 CONTROL GEAR

5.5.1 The driver shall comply with IEC 61347-1 and IEC 61347-2B as applicable and shall be suitable for operation on 230V +-10%, 50Hz single phase system and it must be insured that harmonics filter is provided as per SANS 61000-3-2. The drivers and LED circuitry shall be protected against lighting and power surges. Suitable surge arrestors with a 10kA rating shall be provided for indoor installations and 20kA for outdoor installations.

5.5.2 The luminaire reflector shall act as the gear/mounting tray and shall be manufactured from sheet steel at least 0,7mm thick. The gear tray shall preferably be white epoxy powder coated after all the cut-outs and holes have been made on the tray. The tray shall be mounted to the body of the luminaire by means of screws and the tray shall be provided with a hole through which the screw head can pass plus a slot of the same width as the screw thickness so that the tray can be removed without removing the screws completely.

5.5.3 The gear tray shall be equipped with the components suitable for the luminaires specified in the project specification.

5.6 CAPACITORS

Power factor capacitors shall be supplied to correct the power factor to at least 0.95 of higher.

5.8 DIFFUSER

5.8.1 The diffuser shall consist of a high-impact resistant ultra-violet stabilised acrylic moulding. The diffuser shall be either transparent or opaque as described in the project specification. Where transparent diffusers are required, these shall be moulded with internal prismatic refractors and the outer surface shall be smooth.

5.8.2 The diffuser shall be mounted to the body by means of an external mounting ring and at least three screws, which should preferably not pass through the diffuser body as well. A silicon sponge gasket which fits into a groove on the diffuser shall be used to allow breathing of the luminaire whilst prohibiting the ingress of insects.

6. PHOTOMETRIC DATA

Photometric data sheets of the luminaire as prepared by a laboratory that complies with SANS requirements, shall be submitted with the luminaire.

7. TECHNICAL INFORMATION

The Tenderer shall include full technical particulars regarding the luminaire offered with the tender.

C12.6 STREET-LIGHT LUMINAIRES

1. SCOPE

This specification covers the requirements for LED street-light luminaires as specified in the project specification.

2. GENERAL

2.1 All Light fittings installed for this project is to be of the LED type, unless otherwise stated.

2.2 To promote work creation in South Africa, the luminaire should preferably be manufactured within the Republic of South Africa and should have a local content of at least 50%.

2.3 If the luminaire offered is of foreign origin, full specifications on technical performance and quality must be submitted and full reasons shall be given why the unit had to be imported.

2.4 A sample luminaire shall be provided for evaluation and approval by the Electrical Engineer prior to installation.

2.6 Luminaires. associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear, diffusers, mounting brackets, etc. and shall be delivered to site in a protective covering.

3. STANDARDS

The following standard specifications of the South-African National Standards shall apply to this LED luminaire specification:

3.1	SANS 475:	Luminaires for interior lighting, street lighting and floodlighting – Performance and requirements
3.2	SANS 10114-1:	Interior lighting part 1: Artificial lighting of interiors.
3.3	SANS 10114-2**:**	Interior lighting part 2: Emergency lighting.
3.4	SANS 60598-1:	Luminaires part 1: General requirements and tests.
3.5	SANS 60598-2.1:	Luminaires part 2: Particular requirements section 1 – Fixed general purpose luminaires.
3.6	SANS 60598-2.2:	Luminaires part 2: Particular requirements section 2 – Recessed luminaires.
3.7	SANS 60598-2.3:	Luminaires part 2: Particular requirements section 3 – Luminaires for road and street lighting.
3.8	SANS 60598-2.5:	Luminaires part 2: Particular requirements section 5 – Flood lighting.
3.9	SANS 61347-1 to 13:	Lamp control gear.
3.10	SANS 62031:	LED modules for general lighting – Safety specifications.
3.11	SANS 62384:	DC or AC supplied electronic control gear for LED modules – Performance requirements.
3.12	SANS 62560:	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Safety specification.
3.13	SANS 62612:	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Performance requirements.
3.14	EN 55015:	Limits and methods of measurement of radio disturbance of electrical lighting or equipment.

3.15	EN 61000-3.2:	Electromagnetic compatibility (EMC) limits for harmonic current emissions.
3.16	EN 61000-3.3:	Electromagnetic compatibility (EMC) limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
3.17	EN 61547:	Equipment for general lighting purposes: EMC immunity requirements.
3.18	IEC-EN 62471:	Photo biological safety of lamps and lamp systems for LEDs.
3.19	IES LM-79-08:	Approved method: Electrical and photometric measurement of solid-state lighting products.
3.20	IES LM-80:	Approved method: Measuring lumen maintenance of LED light sources.
3.21	SANS VC 8031:	Coatings applied by the powder-coating process.
3.22	SANS 783:	Baked enamels.
3.23	SANS 10142:	The wiring of Premises

Any standard referred to in the above specifications.

4. PHYSICAL AND ENVIRONMENTAL REQUIREMENTS

4.1 AREAS OF APPLICATION: The luminaires are intended for standard exterior use on premises under the control of the Department of Public Works.

4.2 FIXING: The luminaires shall be suitable for mounting on vertical poles. Spigot entries shall have an internal diameter of 76mm and shall be 75mm deep in accordance with SANS 1088 Table 1 (Type 2).

4.3 ENVIRONMENTAL: The luminaire must be able to withstand an ambient temperature of 35°C. Storage temperature of this luminaire should be able to handle -40°C < T < 60°C.

To this end internal electrical and mechanical components shall not be allowed to exceed their maximum temperature ratings of 75°C. Test reports from an independent authorised testing facility proving this requirement shall be made available on request.

The luminaire shall have an ingress protection rating of IP 65 for the lamp compartment and IP23 for the control gear compartment and this shall be certified in a SANS report.

4.4 SAFETY: The luminaire shall bear the SANS 1464 safety mark.

4.5 NOISE: The noise level emitted from the luminaire shall be kept as low as possible. Drivers/electronic components shall therefore fully comply with the latest edition of SANS 55015.

5. GENERAL TECHNICAL REQUIREMENTS

5.1 GENERAL

5.1.1 The luminaire shall be suitable for operation with mid-power LEDs. **Note that no LED tubes are allowed to be used**.

5.1.2 Colour rendering (Ra) shall be not less than 80 and lumen depreciation of not more than 30% L70 at 50 000 hours @ Tq 25°C. Colour temperature of the LED lamp shall be 4000K, unless otherwise stated.

5.1.3 The luminaire shall be suitable for operation on a 230V single phase 50Hz mains supply.

5.1.4 The luminaire shall be marked with identification labels stating the brand name and model and shall bear the SANS approval mark.

5.1.5 All metal components shall be manufactured from corrosion-resistant materials or shall be treated to prevent corrosion.

5.1.6 All screws and other components must be easily reachable and must be mounted on the luminaire body.

5.2 CONSTRUCTION

BODY

5.2.1 The luminaire shall consist of a high-pressure die-cast aluminium body or a body manufactured from UV stabilized filled polypropylene. The body shall be hail. weather and corrosion proof, it shall be vandal resistant and the ingress of insects shall be prevented. The body shall also be equipped with an effective air-filter.

5.2.2 The body shall preferably consist of a single body with two compartments, viz. a lamp compartment and a control gear compartment.

5.2.3 Provision shall be made for the effective dissipation of heat emanating from the lamp and the control gear.

5.2.4 The luminaire shall be provided with a spigot entry in compliance with SANS 1088 and shall nominally be 42mm with a length of 125mm for side entry and 76mm with a length of 75mm for bottom entry. The requirements shall be as mentioned in the project specification.

DIFFUSER

5.2.5 The diffuser shall be manufactured from heat-resistant glass or high-impact acrylic non-discolouring material.

5.2.6 The size and shape of the diffuser shall be designed so that it neatly fits onto the luminaire body.

5.3 INTERNAL WIRING

5.3.1 Luminaires shall be completely wired internally. Conductors shall be protected with grommets where they pass through holes in the body.

5.3.2 The wiring shall be totally metal enclosed to prevent any possible contact with live components while changing lamps.

5.3.3 The conductor insulation shall be rated to withstand the temperature inside the luminaire body without deterioration.

5.3.4 The wiring shall terminate on a suitable terminal block having screw down plates bearing on the wires. Terminals where screws bear down directly on wires will not be acceptable.

5.3.5 An earth terminal, welded to the luminaire body, shall be provided. To ensure good earth continuity the earth terminal shall not be spray painted. The earth conductor shall be connected to this terminal by means of a crimped lug.

5.5 CONTROL GEAR

5.5.1 The driver shall comply with IEC 61347-1 and IEC 61347-2B as applicable and shall be suitable for operation on 230V +-10%, 50Hz single phase system and it must be insured that harmonics filter is provided as per SANS 61000-3-2. The drivers and LED circuitry shall be protected against lighting and power surges. Suitable surge arrestors with a 10kA rating shall be provided for indoor installations and 20kA for outdoor installations.

5.5.2 The luminaire control gear shall be mounted onto a control gear mounting assembly which also contains the lamp holder. The assembly shall be mounted on the spigot base and the whole assembly shall be removable as a unit without dismantling the luminaire as such.

5.5.3 The gear tray shall be equipped with the components suitable for the luminaires specified in the project specification.

5.6 CAPACITORS

Power factor capacitors shall be supplied to correct the power factor to at least 0.95 of higher.

5.8 DIFFUSER

5.8.1 The diffuser shall consist of a high-impact resistant ultra-violet stabilised acrylic moulding. The diffuser shall be either transparent or opaque as described in the project specification. Where transparent diffusers are required, these shall be moulded with internal prismatic refractors and the outer surface shall be smooth.

5.8.2 The diffuser shall be mounted to the body by means of an external mounting ring and at least three screws, which should preferably not pass through the diffuser body as well. A silicon sponge gasket which

fits into a groove on the diffuser shall be used to allow breathing of the luminaire whilst prohibiting the ingress of insects.

6. PHOTOMETRIC DATA

Photometric data sheets of the luminaire as prepared by a laboratory that complies with SANS requirements, shall be submitted with the luminaire.

7. TECHNICAL INFORMATION

The Tenderer shall include full technical particulars regarding the luminaire offered with the tender.

C12.7 LUMINAIRES

1. SCOPE

This specification covers the requirements for LED high bay luminaires as specified in the project specification.

2. GENERAL

2.1 All Light fittings installed for this project is to be of the LED type, unless otherwise stated.

2.2 To promote work creation in South Africa, the luminaire should preferably be manufactured within the Republic of South Africa and should have a local content of at least 50%.

2.3 If the luminaire offered is of foreign origin, full specifications on technical performance and quality must be submitted and full reasons shall be given why the unit had to be imported.

2.4 A sample luminaire shall be provided for evaluation and approval by the Electrical Engineer prior to installation.

2.7 Luminaires. associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear, diffusers, mounting brackets, etc. and shall be delivered to site in a protective covering.

3. STANDARDS

The following standard specifications of the South-African National Standards shall apply to this LED luminaire specification:

3.1	SANS 475:	Luminaires for interior lighting, street lighting and floodlighting – Performance and requirements
3.2	SANS 10114-1:	Interior lighting part 1: Artificial lighting of interiors.
3.3	SANS 10114-2**:**	Interior lighting part 2: Emergency lighting.
3.4	SANS 60598-1:	Luminaires part 1: General requirements and tests.
3.5	SANS 60598-2.1:	Luminaires part 2: Particular requirements section 1 – Fixed general purpose luminaires.
3.6	SANS 60598-2.2:	Luminaires part 2: Particular requirements section 2 – Recessed luminaires.
3.7	SANS 60598-2.3:	Luminaires part 2: Particular requirements section 3 – Luminaires for road and street lighting.
3.8	SANS 60598-2.5:	Luminaires part 2: Particular requirements section 5 – Flood lighting.
3.9	SANS 61347-1 to 13:	Lamp control gear.
3.10	SANS 62031:	LED modules for general lighting – Safety specifications.
3.11	SANS 62384:	DC or AC supplied electronic control gear for LED modules – Performance requirements.
3.12	SANS 62560:	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Safety specification.
3.13	SANS 62612:	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Performance requirements.
3.14	EN 55015:	Limits and methods of measurement of radio disturbance of electrical lighting or equipment.

3.15	EN 61000-3.2:	Electromagnetic compatibility (EMC) limits for harmonic current emissions.
3.16	EN 61000-3.3:	Electromagnetic compatibility (EMC) limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
3.17	EN 61547:	Equipment for general lighting purposes: EMC immunity requirements.
3.18	IEC-EN 62471:	Photo biological safety of lamps and lamp systems for LEDs.
3.19	IES LM-79-08:	Approved method: Electrical and photometric measurement of solid-state lighting products.
3.20	IES LM-80:	Approved method: Measuring lumen maintenance of LED light sources.
3.21	SANS VC 8031:	Coatings applied by the powder-coating process.
3.22	SANS 783:	Baked enamels.
3.23	SANS 10142:	The wiring of Premises

Any standard referred to in the above specifications.

4. PHYSICAL AND ENVIRONMENTAL REQUIREMENTS

4.1 AREAS OF APPLICATION: The luminaires are intended for interior use in establishments under the control of the Department of Public Works.

4.2 FIXING: The luminaires shall be suitable for mounting against horizontal surfaces or beams or as described in the project specification.

4.4 ENVIRONMENTAL: The luminaire must be able to withstand an ambient temperature of 35°C. Storage temperature of this luminaire should be able to handle -40°C < T < 60°C.

To this end internal electrical and mechanical components shall not be allowed to exceed their maximum temperature ratings of 75°C. Test reports from an independent authorised testing facility proving this requirement shall be made available on request.

4.4 SAFETY: The luminaire shall bear the SANS 1464 safety mark.

4.5 NOISE: The noise level emitted from the luminaire shall be kept as low as possible. Drivers/electronic components shall therefore fully comply with the latest edition of SANS 55015.

5. GENERAL TECHNICAL REQUIREMENTS

5.1 GENERAL

5.1.1 The luminaire shall be suitable for operation with mid-power LEDs. **Note that no LED tubes are allowed to be used**.

5.1.2 Colour rendering (Ra) shall be not less than 80 and lumen depreciation of not more than 30% L70 at 50 000 hours @ Tq 25°C. Colour temperature of the LED lamp shall be 4000K, unless otherwise stated.

5.1.3 The luminaire shall be suitable for operation on a 230V single phase 50Hz mains supply.

5.1.4 The luminaire shall be marked with identification labels stating the brand name and model and shall bear the SANS approval mark.

5.1.5 All metal components shall be manufactured from corrosion-resistant materials or shall be treated to prevent corrosion.

5.1.6 All screws and other components must be easily reachable and must be mounted on the luminaire body.

5.2 CONSTRUCTION

BODY

5.2.1 The luminaire shall consist of a high-pressure die-cast aluminium body. The body shall be corrosion proof, it shall be vandal resistant and the ingress of insects shall be prevented. The body shall also be equipped with an effective air-filter.

5.2.2 The body shall preferably consist of a single body with two compartments, viz. a lamp compartment and a control gear compartment.

5.2.3 Provision shall be made for the effective dissipation of heat emanating from the lamp and the control gear.

5.3 INTERNAL WIRING

5.3.1 Luminaires shall be completely wired internally. Conductors shall be protected with grommets where they pass through holes in the body.

5.3.2 The wiring shall be totally metal enclosed to prevent any possible contact with live components while changing lamps.

5.3.3 The conductor insulation shall be rated to withstand the temperature inside the luminaire body without deterioration.

5.3.4 The wiring shall terminate on a suitable terminal block having screw down plates bearing on the wires. Terminals where screws bear down directly on wires will not be acceptable.

5.3.5 An earth terminal, welded to the luminaire body, shall be provided. To ensure good earth continuity the earth terminal shall not be spray painted. The earth conductor shall be connected to this terminal by means of a crimped lug.

5.5 CONTROL GEAR

5.5.1 The driver shall comply with IEC 61347-1 and IEC 61347-2B as applicable and shall be suitable for operation on 230V +-10%, 50Hz single phase system and it must be insured that harmonics filter is provided as per SANS 61000-3-2. The drivers and LED circuitry shall be protected against lighting and power surges. Suitable surge arrestors with a 10kA rating shall be provided for indoor installations and 20kA for outdoor installations.

5.5.2 The luminaire control gear shall be mounted onto a control gear mounting assembly which also contains the lamp holder. The assembly shall be mounted on the spigot base and the whole assembly shall be removable as a unit without dismantling the luminaire as such.

5.5.3 The gear tray shall be equipped with the components suitable for the luminaires specified in the project specification.

5.6 CAPACITORS

Power factor capacitors shall be supplied to correct the power factor to at least 0.95 of higher.

6. PHOTOMETRIC DATA

Photometric data sheets of the luminaire as prepared by a laboratory that complies with SANS requirements, shall be submitted with the luminaire.

7. TECHNICAL INFORMATION

The Tenderer shall include full technical particulars regarding the luminaire offered with the tender.

C12.8 FLOODLIGHT LUMINAIRES

1. SCOPE

This specification covers the requirements for LED floodlight luminaires, for outdoor applications as specified in the project specification.

2. GENERAL

2.1 All Light fittings installed for this project is to be of the LED type, unless otherwise stated.

2.2 To promote work creation in South Africa, the luminaire should preferably be manufactured within the Republic of South Africa and should have a local content of at least 50%.

2.3 If the luminaire offered is of foreign origin, full specifications on technical performance and quality must be submitted and full reasons shall be given why the unit had to be imported.

2.4 A sample luminaire shall be provided for evaluation and approval by the Electrical Engineer prior to installation.

2.8 Luminaires. associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear, diffusers, mounting brackets, etc. and shall be delivered to site in a protective covering.

3. STANDARDS

The following standard specifications of the South-African National Standards shall apply to this LED luminaire specification:

3.1	SANS 475:	Luminaires for interior lighting, street lighting and floodlighting – Performance and requirements
3.2	SANS 10114-1:	Interior lighting part 1: Artificial lighting of interiors.
3.3	SANS 10114-2:	Interior lighting part 2: Emergency lighting.
3.4	SANS 60598-1:	Luminaires part 1: General requirements and tests.
3.5	SANS 60598-2.1:	Luminaires part 2: Particular requirements section 1 – Fixed general purpose luminaires.
3.6	SANS 60598-2.2:	Luminaires part 2: Particular requirements section 2 – Recessed luminaires.
3.7	SANS 60598-2.3:	Luminaires part 2: Particular requirements section 3 – Luminaires for road and street lighting.
3.8	SANS 60598-2.5:	Luminaires part 2: Particular requirements section 5 – Flood lighting.
3.9	SANS 61347-1 to 13:	Lamp control gear.
3.10	SANS 62031:	LED modules for general lighting – Safety specifications.
3.11	SANS 62384:	DC or AC supplied electronic control gear for LED modules – Performance requirements.
3.12	SANS 62560:	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Safety specification.
3.13	SANS 62612:	Self-ballasted LED lamps for general lighting services with supply voltages > 50V – Performance requirements.
3.14	EN 55015:	Limits and methods of measurement of radio disturbance of electrical lighting or equipment.

3.15	EN 61000-3.2:	Electromagnetic compatibility (EMC) limits for harmonic current emissions.
3.16	EN 61000-3.3:	Electromagnetic compatibility (EMC) limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
3.17	EN 61547:	Equipment for general lighting purposes: EMC immunity requirements.
3.18	IEC-EN 62471:	Photo biological safety of lamps and lamp systems for LEDs.
3.19	IES LM-79-08:	Approved method: Electrical and photometric measurement of solid-state lighting products.
3.20	IES LM-80:	Approved method: Measuring lumen maintenance of LED light sources.
3.21	SANS VC 8031:	Coatings applied by the powder-coating process.
3.22	SANS 783:	Baked enamels.
3.23	SANS 10142:	The wiring of Premises

Any standard referred to in the above specifications.

4. PHYSICAL AND ENVIRONMENTAL REQUIREMENTS

4.1 AREAS OF APPLICATION: The luminaires are intended for exterior use in establishments under the control of the Department of Public Works.

4.2 FIXING: The luminaires shall be suitable for mounting against horizontal or vertical surfaces, walls, perimeter fences or on poles as described in the project specification.

4.5 ENVIRONMENTAL: The luminaire must be able to withstand an ambient temperature of 35°C. Storage temperature of this luminaire should be able to handle -40°C < T < 60°C.

To this end internal electrical and mechanical components shall not be allowed to exceed their maximum temperature ratings of 75°C. Test reports from an independent authorised testing facility proving this requirement shall be made available on request.

4.4 SAFETY: The luminaire shall bear the SANS 1464 safety mark.

4.5 NOISE: The noise level emitted from the luminaire shall be kept as low as possible. Drivers/electronic components shall therefore fully comply with the latest edition of SANS 55015.

5. GENERAL TECHNICAL REQUIREMENTS

5.1 GENERAL

5.1.1 The luminaire shall be suitable for operation with mid-power LEDs. **Note that no LED tubes are allowed to be used**.

5.1.2 Colour rendering (Ra) shall be not less than 80 and lumen depreciation of not more than 30% L70 at 50 000 hours @ Tq 25°C. Colour temperature of the LED lamp shall be 4000K, unless otherwise stated.

5.1.3 The luminaire shall be suitable for operation on a 230V single phase 50Hz mains supply.

5.1.4 The luminaire shall be marked with identification labels stating the brand name and model and shall bear the SANS approval mark.

5.1.5 All metal components shall be manufactured from corrosion-resistant materials or shall be treated to prevent corrosion.

5.1.6 All screws and other components must be easily reachable and must be mounted on the luminaire body.

5.2 CONSTRUCTION

5.2.1 The luminaire shall consist of a high-pressure die-cast aluminium body. The body shall be hail-proof, weatherproof, corrosion proof and vandal resistant and the ingress of insects shall be prevented. The body shall also be equipped with an effective air-filter.

5.2.2 The body shall preferably consist of a single body with two compartments, viz. a lamp compartment and a control gear compartment.

5.2.3 Provision shall be made for the effective dissipation of heat emanating from the lamp and the control gear.

5.2.4 All components, including screws, bolts and nuts utilized in the construction of the luminaire or fixing of its components, shall be corrosion proof. Cadmium plated or stainless-steel materials are preferred.

5.2.5 The luminaire shall be provided with a cable entry at the back of the luminaire by means of a plastic gland. However, it shall be possible to provide 20mm diameter conduit entries or cable entries from the sides of the luminaire and suitable drilling indents or knockouts shall be furnished on the luminaire body.

5.2.6 A heavy gauge galvanized steel stirrup bracket for mounting the luminaire shall be supplied with the luminaire unless omitted in the project specification.

5.2.7 The luminaire shall have an ingress protection rating of at least IP65.

5.3 INTERNAL WIRING

5.3.1 Luminaires shall be completely wired internally. Conductors shall be protected with grommets where they pass through holes in the body.

5.3.2 The wiring shall be totally metal enclosed to prevent any possible contact with live components while changing lamps.

5.3.3 The conductor insulation shall be rated to withstand the temperature inside the luminaire body without deterioration.

5.3.4 The wiring shall terminate on a suitable terminal block having screw down plates bearing on the wires. Terminals where screws bear down directly on wires will not be acceptable.

5.3.5 An earth terminal, welded to the luminaire body, shall be provided. To ensure good earth continuity the earth terminal shall not be spray painted. The earth conductor shall be connected to this terminal by means of a crimped lug.

5.5 CONTROL GEAR

5.5.1 The driver shall comply with IEC 61347-1 and IEC 61347-2B as applicable and shall be suitable for operation on 230V +-10%, 50Hz single phase system and it must be insured that harmonics filter is provided as per SANS 61000-3-2. The drivers and LED circuitry shall be protected against lighting and power surges. Suitable surge arrestors with a 10kA rating shall be provided for indoor installations and 20kA for outdoor installations.

5.5.2 The luminaire control gear shall be mounted onto a control gear mounting assembly which also contains the lamp holder. The assembly shall be mounted on the spigot base and the whole assembly shall be removable as a unit without dismantling the luminaire as such.

5.5.3 The gear tray shall be equipped with the components suitable for the luminaires specified in the project specification.

5.6 CAPACITORS

Power factor capacitors shall be supplied to correct the power factor to at least 0.95 of higher.

6. LIGHT DISTRIBUTION

The floodlights shall be available with at least three types of symmetrical light distribution characteristics. These shall be:

6.1 Wide beam

6.2 Medium beam

6.3 Narrow beam

7. PHOTOMETRIC DATA

Photometric data sheets of the luminaire as prepared by a laboratory that complies with SANS requirements, shall be submitted with the luminaire.

8. TECHNICAL INFORMATION

The Tenderer shall include full technical particulars regarding the luminaire offered with the tender.

SECTION C16

C16 EARTHING ELECTRODES

1. GENERAL

This section covers uncoated, coated and metal clad circular rod electrodes intended to provide an earth in soil for electrical and lightning arrestor systems.

2. CATEGORY AND TYPE

2.1 Only the following type of earth rods shall be used:

1(a) - Solid copper.

1(b) - Solid stainless steel.

2 (a) - Solid steel with bonded copper protection.

2 (b) - Solid steel with plated copper protection.

2 (c) - Solid steel with a shrunk-on copper jacket.

3 - Solid steel with a shrunk-on stainless steel jacket.

4 - Galvanised steel.

2.2 Bare aluminium is not acceptable as an electrode material.

2.3 All rods shall be solid and of circular cross section with length as specified in the Detail Technical Specification.

2.4 The nominal diameter of the earthing rods shall not be less than 16mm unless the rods are specified for placing in pro-drilled holes in which event the minimum nominal diameter shall not be less than 12mm.

3. COUPLINGS AND CONDUCTOR CLAMPS

3.1 Earthing electrodes shall be provided with (n-1) couplings where n = number of rods supplied.

3.2 Rods designed for coupling by means of external sleeves shall be provided with an adequate quantity of hydrocarbon or silicon grease to be applied to the coupling before the joint is made.

3.3 Rods designed for coupling by means of internal pins or splines shall be provided with thin-walled tubes and hydrocarbon or silicon grease to seal the joint.

3.4 Conductor clamps shall be provided to suit the type and size of rods provided and the type and size of conductor specified in the Detail Technical Specification.

3.5 The material of the clamps shall be electrolytically compatible with the rod and conductor materials.

3.6 Where brazed or welded connections are specified, the supplier of the rods shall stipulate at least two types of metals which are compatible with the rod and conductor materials.

3.7 An adequate number of driving caps or bolts shall be supplied with the rods to protect the ends of the earthing rods whilst being driven into hard soil.

SECTION C17

C17 SWITCHBOARDS (Up to 1 kV)

1. GENERAL

1.1 SCOPE

This section covers the manufacturing and testing of flush mounted, surface mounted and floor standing switchboards for general installations in normal environmental conditions and for system voltages up to 1 kV.

1.2 SIZE

All switchboards shall be of ample size to accommodate the specified switchgear and provide space for future switchgear. For every 4 (or part of 4) 5kA circuit-breakers on a switchboard, space for an additional 5kA circuit breaker shall be allowed unless future space requirements are dearly specified. For circuit breakers above 5kA, this factor shall be 15%. The clearance between adjoining switchgear openings shall be as specified in par. 6.2.

1.3 EXTERNAL DIMENSIONS

The maximum allowable height of free-standing switchboards is 2,2m. Cubicle type boards may be up to 2,4m high if they can be fully dismantled into individual cubicles. Where, due to space restrictions, a board exceeds 2,4m in height, equipment not normally requiring access, shall be installed in the top section, enabling equipment normally requiring access to be installed lower down in the board. All other specified external dimensions for switchboards shall be strictly adhered to. If the clearances specified in par. 6.2 cannot be adhered to as a result of restricting external dimensions, the Contractor shall obtain the approval of the Department before manufacturing the switchboards.

1.4 MOISTURE AND VERMIN

All switchboards shall be rendered moisture proof and vermin proof and shall be adequately ventilated. Refer to par. 4.10 and 4.11.

1.5 LOAD BALANCE

The load shall be balanced as equally as possible across multiphase supplies.

2. CONSTRUCTION OF FLUSH MOUNTED SWITCHBOARDS

2.1 STANDARD

Flush mounted switchboards shall comply fully with SANS 1765. Unless the depths of the switchboards are specified, the depths shall be determined in accordance with par. 6.

2.2 EXPANDED METAL

Where switchboards are to be built into 115mm thick walls, expanded metal shall be spot-welded to the rear of the bonding trays. The expanded metal shall protrude at least 75mm on each tray side to prevent plaster from cracking.

2.3 KNOCK-OUTS

Knock-outs shall be provided in the top and bottom ends of each switchboard tray to allow for the installation of conduits for the specified and future circuits. Knock-outs shall be provided for an equal number of 20mm and 25mm dia. conduits.

2.4 PANEL

Front panels shall have machine punched slots for housing the specified and future flush mounted switchgear.The distance between the inside of the closed doors and the panel shall not be less than 20mm. No equipment maybe mounted on the panel unless the panel is permanently hinged to the switchboard frame.

2.5 FIXING OF FRONT PANELS

The front panel shall be secured to the architrave frame by means of 6mm studs and chromium-plated hexagonal domed nuts, hank nuts or captive fasteners. Alternatively, the panel may be secured to the architrave frame by means of two pins at the bottom and a latch or lock at the top of the panel. Self-tapping screws will not be allowed. All front panels shall be provided with a minimum of one chrome plated handle.

2.6 DOOR HANDLES AND CATCHES

Switchboard doors shall be equipped with handles and catches. Locks shall only be provided when specified. In all cases where lockable doors are required and, in all cases, where the switchboard doors are higher or wider than 450mm, handles consisting of a push-button-and-handle combination with spring loaded catch or rotary handle-and-catch combination shall be installed. Switchboard doors smaller than 450mm in height and width may be equipped with spring loaded flush mounted ring type latches. Square key operated catches are not acceptable unless specified.

3. CONSTRUCTION OF SURFACE MOUNTED SWITCHBOARDS

3.1 STANDARD

Surface mounted switchboards shall comply with SANS 1765.

3.2 SWITCHBOARD TRAY

Surface mounted switchboards shall be equipped with a 1,6mm minimum sheet steel reinforced tray suitably braced and stiffened to carry the chassis, door and equipment. Lugs to secure the switchboard to a vertical surface shall be provided.

3.3 CONSTRUCTION

All joints shall be welded or securely bolted. The tray shall be square and neatly finished without protrusions. The front tray sides shall be rounded with an edge of at least 20mm to accommodate flush doors.

3.4 CHASSIS

A sheet steel chassis for the mounting of equipment shall be bolted to the tray and shall comply with the requirements of par. 6.1 and 6.3.

3.5 FRONT PANEL AND DOOR

The front panel and door shall comply with par. 2.4 to 2.6 above. Doors shall fit flush in the tray when closed.

3.6 DIMENSIONS

Unless the depth of the switchboards is specified, the dimensions shall be determined in accordance with the requirements of par. 6.2 and 6.3.

4. CONSTRUCTION OF FREE-STANDING SWITCH BOARDS

4.1 FRAMEWORK

A metal framework for free standing switchboards shall be manufactured from angle iron. channel iron or 2mm minimum folded metal. A solid U-channel base frame, sufficiently braced to support all equipment and span floor

trenches and access holes shall be provided. Switchboards shall be of cubicle design with 2mm side panels forming divisions between cubicles. The maximum allowable cubicle width is 1,5m. (Refer also to par. 4.7). Joints shall be non-continuously butt-welded. Welds shall be ground smooth and the joint wiped with plumber's metal in order to provide a smooth finish. Switchboards wider than 2m shall be fitted with screwed eye-bolts attached to the framework to facilitate loading and transportation of the board.

4.2 REAR AND SIDE PANELS

The rear panels shall be removable and shall be manufactured from 2mm minimum sheet steel. The panels shall have returned edges which are recessed in the frame or which fit over lips on the switchboard frame. The panels shall be secured to the frame by means of studs and chromium-plated hexagonal domed brass nuts or hank nuts or captive fasteners equal or similar to "DZUS" or "CAMLOC". Where switchboards are intended for installation in vertical building ducts or against walls, the rear and side panels may consist of a single folded sheet which is either bolted or welded to the frame or which forms part of the folded metal frame.

4.3 FRONT PANELS

4.3.1 The front panels of floor standing switchboards shall preferably be hinged except where flush mounted equipment prevents this. Alternatively, panels shall be secured by means of the methods described in par. 2.5. The panels shall be arranged in multi-tiered fashion to allow for the logical grouping of equipment in accordance with par. 6.

4.3.2 The hinged front panels shall have a dished appearance with 20mm upturns which fit over a lip on the switchboard frame. Alternatively, the hinged panels shall have folded edges and shall be fitted flush or slightly recessed in the switchboard frame. The latter method shall be used where doors are required. (Also refer to par. 4.6). Corners shall be welded and smoothed.

4.3.3 The panels shall be of 2mm minimum sheet steel with machine punched slots to allow for the flush mounting of instrumentation, switchgear toggles and operating handles. A minimum clearance of 50mm shall be maintained between the rear of equipment mounted on the panels (taking into account terminals or other projections) and the frame and chassis of the switchboard. Separate panels shall preferably be provided for the mounting of instrumentation and for covering flush mounted switchgear. Enclosed switchgear with front panels e.g. combination fuse-switch units, may be flush mounted in the board in lieu of separate hinged panels.

4.3.4 Hinged panels shall be suitably braced and stiffened to carry the weight of flush mounted equipment and to prevent warping.

4.3.5 Hinged panels with flush mounted equipment and panels higher than 600mm shall be supported by hinges of adequate strength to ensure smooth and reliable operation. 16mm pedestal or similar heavy-duty hinges with single fixing bolts may be used on panels smaller than 600mm. On the larger panels long pedestal type hinges with two fixing bolts per hinge are preferred. Piano hinges are not acceptable for this application.

4.3.6 A tubular chromium-plated handle shall be fitted on each panel. The handle may be omitted if "DZUS" or "CAMLOC" fasteners are used.

4.3.7 Blanking plates shall be fitted over slots intended for future equipment. These plates shall be fixed in a manner which does not require the drilling of holes through the front panel. Dummy circuit-breakers may be fitted where applicable.

4.3.8 Front panels containing live equipment such as instrumentation or control switches, shall be bonded to the switchboard frame with a braided copper earth trap with an equivalent cross-sectional area of at least $4mm^2$.

4.4 SECURING OF FRONT PANELS

Hinged panels shall be secured in position by means of square key operated non-ferrous fasteners designed to draw the panels closed or similar quick-release fasteners. Self-tapping screws are not acceptable. Where non-hinged removable panels are specified, they shall be secured in position by means of 6mm studs and hexagonal chromed brass dome nuts and washers or hank nuts. Non-hinged removable panels may alternatively be secured in position by means of two pins at the bottom and a latch or lock at the top.

4.5 CHASSIS

A suitably braced chassis for the mounting of switchgear and equipment shall be firmly secured to the frame ofthe switchboard. The chassis shall be designed so that the switchgear can be installed in accordance with par. 6. Circuit-breakers and isolating switches which are not of the moulded-case air-break type and the insulators of busbars for ratings of 200 A and more may be secured directly to the framework. (Refer to par. 6.1).

4.6 DOORS

(a) Doors need only be provided when specified. Doors shall be arranged in multi-tiered fashion to allow for the logical grouping of equipment in accordance with par. 6.

(b) Doors shall have a dished appearance with a minimum of 20mm upturns which fit over a lip on the switchboard frame or shall fit flush in the switchboard frame. Corners shall be welded and smoothed.

(c) Doors shall be of aluminium sheet steel with machine punched slots to allow for the flush mounting of instrumentation, control and protection equipment. Switchgear shall be flush mounted in the front panels behind the doors unless specified to the contrary. A minimum clearance of 50mm shall be allowed between the rear of equipment mounted on doors (including terminals and projections) and the frame, front panel and chassis.

(d) Doors shall be suitably braced and stiffened to carry the weight of the equipment and to prevent warping.

(e) Hinges for doors shall be provided as described in par. 4.3.5. At least three hinges shall be provided on doors higher than 1,2m.

(f) Doors shall be fitted with handles consisting of a pushbutton-and-handle combination with spring loaded catch or a rotary handle-and-catch combination. Flush mounted ring type handles or square key operated latches are not acceptable. The same key shall fit all locks on the switchboard in cases where locks are required.

(g) Doors shall be fitted with hypalon or neoprene seals.

(h) Doors containing any electrical equipment shall be bonded to the switchboard frame with a braided copper earth w re with an equivalent cross-sectional area of at least 4mm^2.

4.7 SECTIONS

For ease of transportation and to facilitate access to the allocated accommodation, switchboards may be dismantled into cubicles or sections. Each section shall be rigidly manufactured to ensure that damage to the switchgear will not occur during transportation and handling. Where required, switchboards shall have temporary wood or steel bracing to protect switchgear and facilitate handling.

4.8 GROUPING OF SWITCHGEAR

The switchgear shall be logically arranged and grouped as described in par. 6. Depending upon the number and size of components, a common front panel may be installed over one or more groups of equipment. All equipment shall be installed in accordance with the requirements of par. 6.

4.9 CABLE GLAND PLATE

A cable gland plate shall be installed across the full width of each power cubicle at a minimum height of 300mm above the bottom of the switchboard to house the cable glands. A Steel cable channel or other approved support shall be provided to carry the weight of the cable and remove mechanical stress from the cable glands. A minimum distance as required by the bending radius of outgoing cables shall be provided between the lowest terminals of major equipment and the gland plate.

4.10 VENTILATION

Switchboards shall be property ventilated, especially cubicles containing contactors, transformers, motor starters, lighting dimmers and other heat producing equipment. Louvres shall be fitted to provide adequate upward or cross ventilation. All louvres shall be vermin proofed with 1,5mm brass mesh or perforated steel plate internally spot

welded over the louvres. The internal ambient temperature shall not exceed 40ºC.

4.11 VERMIN PROOFING

Free standing boards shall be protected against vermin, especially from below, where cables have to pass through the gland plate, rubber grommets shall be provided and enough non-hardening compound shall be delivered with the board so that these holes can be sealed properly after installation of the cables.

5. CONSTRUCTION OF MAIN LOW-TENSION SWITCHBOARDS

Main low-tension switchboards and sub-main low-tension switchboards heavily equipped shall comply with par. 4.1 to 4.11 as well as the following exceptions or additions:

(a) These boards shall be fully extensible with removable busbar cover plates in the side panels.

(b) Doors shall not be supplied unless specifically called for.

(c) Switchgear and equipment shall be installed in accordance with the requirements of par. 6.

(d) Provision for metering equipment shall be made in accordance with requirements of local authorities where applicable.

6. MOUNTING OF EQUIPMENT

6.1 The mounting of equipment shall comply with SANS 1765 where applicable. Equipment to be mounted on the chassis shall be mounted by bolts, washers and nuts or by bolts screwed into tapped holes in the chassis plate. In the latter case the minimum thickness of the chassis plate shall be 2,5mm. The latter method shall not be used where boards will be subject to vibration or mechanical shocks. Self-tapping screws will not be accepted.

6.2 SPACE REQUIREMENTS

In designing the switchboards, the following requirements shall be strictly adhered to: -

(a) A minimum of 50mm between any piece of equipment and the frame or internal partitioning. This minimum space is required on all sides of the equipment. In the case of a single row of single-pole circuit- breakers the spacing on one side row may be reduced to 25mm if the incoming side of the circuit- breakers is busbar connected.

(b) A minimum of 75mm between horizontal rows of equipment. The maximum outside dimensions of equipment shall be considered.

(c) Circuit-breakers up to a fault rating of 10 kA may be installed adjacent to each other. For higher ratings a minimum of 40mm shall be allowed between circuit-breakers or isolators.

(d) Sufficient space shall be provided for wiring allowing for the appropriate bending radius.

(e) Space for future equipment shall be allowed as described in par. 1.2.

6.3 MOUNTING OF CHASSIS

The chassis of flush mounted and smaller surface mounted boards shall be mounted in accordance with SANS 1765. For all free-standing switchboards and surface mounted switchboards where the main switch rating exceeds 100A (triple-pole), space for wiring shall be provided between the chassis and tray. This space shall be adequate to install the supply cable behind the chassis and terminate on the main switch without sharp bends in the cable cores.

6.4 GROUPING OF EQUIPMENT

6.4.1 Equipment shall be arranged and grouped in logical fashion as follows:

(a) Main switch - to be installed either at the top or bottom of the board.

(b) Short circuit protection equipment - fuse gear or fuse-switches.

(c) Change-over contactors or other contactors controlling the supply.

(d) Motor supplies.

(e) Fuse-switches for outgoing circuits.

(f) Other circuits and equipment.

6.4.2 Where a portion of the equipment on the switchboard is supplied from a standby power source, the change-over contactor and the associated equipment shall be grouped in a separate compartment.

6.4.3 Where earth leakage units are required, the associated circuit-breakers shall be installed adjacent to the unit.

6.5 MOUNTING OF CIRCUIT-BREAKERS

All moulded-case circuit-breakers shall be flush mounted with only the toggles protruding. Miniature circuit- breakers may be installed in clip-in trays mounted on the frame. All other circuit-breakers shall be bolted to the chassis. Special provision shall be made for large main switches when designing the framework. Care shall be exercised that the rear studs of circuit-breakers are properly insulated from the steel chassis. Where necessary, insulating material shall be installed between the rear studs and the chassis. Circuit-breakers shall be installed so that the toggles are in the up position when "ON" and down when "OFF".

6.6 INSTRUMENTATION

All metering instruments shall be flush mounted in the front panel or door. The rear terminals of instruments mounted on doors shall be covered with an insulating material to prevent accidental contact. Current transformers for metering shall be mounted so that the rating plate is clearly visible. Fuses for instrumentation shall be mounted in an easily accessible position and clearly marked.

6.7 MOUNTING OF FUSES

6.7.1 Fuse holders shall be mounted semi-recessed in the front panel so that fuses can readily be changed without removing the front panel. Busbar mounted fuses for instrumentation shall be used as far as possible.

6.7.2 Where equipment requiring fuses is specified on a board (fuse switches etc), a ruling shall be obtained from the Department on the quantity of spare fuses to be provided.

6.8 EQUIPMENT IN MAIN BOARDS

Equipment in main low-tension switchboards and sub-main boards shall be grouped in individual compartments. Equipment shall be installed as follows:

6.8.1 Rack-out type air circuit-breakers shall be mounted in the bottom section, flush behind the panel with the handle only protruding. If this is not possible, the panel shall be omitted and the air circuit-breakers installed behind a door.

6.8.2 If the main switch is a moulded-case circuit-breaker or isolator it shall be flush mounted.

6.8.3 Contactors controlling the supply shall be installed behind separate front panels.

6.8.4 All metering, protection and indicating equipment shall be clearly visible from the front of the board. Current transformer ratios and multiplication factors shall be clearly marked. Where doors are specified the equipment shall be installed flush in the doors and covered as described in par. 6.6.

6.8.5 All circuit-breakers and fuses (with the exception of fuse-switches) may be grouped together behind one

or more panels as described in par. 4.8.

6.8.6 Fuses or fuse-switches providing back-up protection for circuit breakers, shall be grouped with the associated circuit-breakers. Exposed surfaces effuse-switches shall be of the same finish and colour as the rest of the board where practical.

6. 9 STANDBY SUPPLIES

6.9.1 Where standby power from a diesel-generator set or other sources is available and has to be connected to some of the equipment on a switchboard, the switchboard shall be divided into separate sections with sheet metal divisions to isolate standby power and mains power sections.

6.9.2 Standby and normal supply shall each have its own incoming isolator or circuit-breaker.

6.9.3 The two sections of the switchboard shall be labelled "ESSENTIAL" and "NON-ESSENTIAL" respectively.

6.9.4 The front panels of standby and no-break supply sections shall be painted in distinctive colours as follows:

(a)	Normal supply	"LIGHT ORANGE",	colour B26 of SANS 1091
(b)	Standby power	"SIGNAL RED",	colour All of SANS 1091
(c)	No-break supply	"DARK VIOLET",	colour F06 or
		"OLIVE GREEN".	colour H05 of SANS 1091

7. BUSBARS IN SWITCHBOARDS

7.1 APPLICATION

7.1.1 Busbars shall be manufactured of solid drawn high conductivity copper with a rectangular cross-section in accordance with SANS 1473, SANS 1195 and BS 159 and BS 1433, where applicable.

7.1.2 Although SANS 1473 refers only to overhead or rising busbars, busbars in switchboards shall comply with applicable sections of this specification especially as far as insulation and clearance values, creepage distance, joints, insulation resistance, dielectric strength, deflection test, absorption resistance and rated short time withstand current are concerned.

7.1.3 Busbars shall be supplied for the following applications:

(a) Distribution of supply voltage.

(b) Connection of equipment with ratings exceeding the current rating of 70mm^2 conductors (par. 8.6).

(c) Connection of outgoing circuits with current ratings in excess of that allowed for 70mm^2 conductors (par. 7.8).

(d) Collector bars for parallel cables (par. 8.1).

(e) Connection bars for neutral conductors (par. 7.9).

(f) Earth busbars (par. 7.10).

(g) Connections to miniature circuit-breakers (par. 8.6).

7.2 SEE PART C15 FOR FURTHER DETAILS.

8. WIRING

8.1 CABLING

Cables connected to incoming or outgoing circuits shall be terminated on the gland plate supplied for thispurpose. (Refer to par. 4.9). Power cables up to and including 70mm^2 may terminate on clamp type terminals where the clamping screws are not in direct contact with the conductor. Connection to the equipment can then be made with cables that are similarly connected to the clamp terminal. All power cables larger than 70mm^2 terminateon busbars that are connected to the associated equipment. Parallel incoming or outgoing cables shall be connected to a collector busbar without crossing the conductors.

8.2 TERMINAL STRIPS

External wiring for low voltage, control, interlocking, alarm, measuring and DC circuits shall terminate on numbered wiring terminals complying the with Department's standard specification for "WIRING TERMINALS", Section C9. The correct terminal size as recommended by the manufacturer for each conductor to be connected shall be used throughout. The terminal numbers shall appear on the wiring diagrams of the switchboard. Terminals for power wiring shall be separated from other terminals. Terminals for internal wiring shall not be interposed with terminals for external circuits. All connections to terminals shall be identified as described in par.
8.8. Where switchboards consist of separate sections, the control wiring passing between sections shall be terminated on strips in each section so that control wiring can be readily re-instated when reassembling the board.

8.3 CURRENT RATINGS

The current rating of conductors for the internal wiring shall be sufficient for the maximum continuous current that can occur in the circuit. This value shall be determined from the circuit-breaker or fuse protection of the circuit.

TABLE 17.3

CURRENT RATING FOR INTERN

Nominal cross-Section mm^2	CONDUCTOR RATING (A)				
	Number of conductors in bunch				
	1	2-3	4-5	6-9	10 and more
2,5	28	25	22	19	16
4	37	33	30	26	22
6	47	42	38	33	28
10	64	54	51	44	38
16	85	76	68	59	51
25	112	101	89	78	67
35	138	124	110	96	88
50	172	154	137	120	103
70	213	191	170	149	127

The above table shall be applied for ambient temperatures up to 30ºC. (Refer to table 41.2 in VDE 0100). For higher ambient temperatures the values shall be derated as prescribed by SANS 10142. Table 10.

8.4 INTERNAL WIRING

(a) Standard 600/1 000 V grade PVC-insulated stranded annealed copper conductors to SANS 1507 shall be employed for the internal power wiring of switchboards. The smallest conductor size to be used for power wiring in switchboards shall be 2.5mm^2. Flexible cord of minimum size 1,0mm^2 may be used for control wiring.

(b) Where heat generating equipment is present and the internal temperature of the board is likely to exceed 50°C, silicon-rubber insulated stranded conductors shall be used.

(c) Wiring shall be arranged in horizontal and vertical rows and shall be bound with suitable plastic straps or installed in PVC wiring channels. Under no circumstances may PVC adhesive tape be used for the bunching of conductors or for the colour identification of conductors.

(d) Bunched conductors shall be neatly formed to present a uniform appearance without twisting or crossing the conductors. Conductors leaving the harnesses shall be so arranged that they are adjacent to the chassis.

(e) Conductors to hinged panels and doors shall be secured on both the door and the frame and shall be looped between the two points. The loop shall be arranged to produce a twisting motion when the door is opened or closed. A flexible protection sleeve shall be installed over the conductors.

(f) Where wiring channels are used, they shall be installed horizontally and vertically. Under no circumstances may power and control circuit wiring be installed in the same wiring channels. Channel shall not be more than 40% full.

(g) All wiring between different Panels within the same switchboard shall be installed in wiring channels.

(h) Grommets shall be installed in each hole in the metalvvork through which conductors pass.

(i) All wiring shall be installed away from terminals, clamps or other current carrying parts. Wiring shall also be kept away from exposed metal edges or shall be protected where they cross metal edges protected where they cross metal edges.

(k) Conductors may be jointed at equipment terminals or numbered terminal strips only. No other connections are allowed.

(l) Where conductors change direction, smooth bends shall be formed with a radius of at least 5 times the outside diameter of the conductor or harness.

(m) Where screened cables are specified, the screening shall be earthed in the switchboard or control board only unless clearly specified to the contrary, Screened cables entering control boxes through pressed knock-outs, shall terminate in compression glands. Conductors shall as far as possible remain inside the screening at terminations. Where conductors have to separate from the screen, the braiding shall be separated and the conductors drawn through the braid without damaging the braiding. The conductors shall then be connected to their respective terminals and the screening smoothed and connected to the earth terminal.

(n) Where neutral connections are looped between the terminals of instruments, it is essential that the two conductor ends be inserted into a common lug or ferrule and are crimped or soldered together in order that the neutral connection is not broken when the conductors are removed from one of the instruments.

(o) Wiring should as far as possible be confined to the front portions of switchboards for ease of access. This requirement is important for wiring between smaller circuit-breakers and the associated main circuit- breaker as well as the wiring from circuit-breakers to lighting and socket-outlet circuits.

(p) A maximum of two conductors will be allowed per equipment terminal. Where more conductors must be connected to the same equipment terminal (e.g. a main circuit-breaker feeding other circuit-breakers), stub busbars shall be provided for the various conductors. Refer also to par. 8.6.

8. 5 LOAD END CONNECTIONS

The supply end connections to all equipment shall under all circumstances be at the top and the load end connections at the bottom.

8.6 WIRING TO CIRCUIT-BREAKERS

Equipment with a rating exceeding the current rating of 70mm^2 conductors shall be connected by means of busbars to the main busbars. Looped connections may only be installed for a maximum of two outgoing circuits. Where there are more than two outgoing circuits, busbars shall be used and equipment connected individually to the busbars. Where miniature circuit-breakers are mounted in continuous rows and supplied by busbars connected to each MCB. Each busbar shall be supplied by a separate conductor. This conductor shall be connected to the busbar by means of a separate lug and not via an MCB terminal.

8.7 CONDUCTOR TERMINATIONS

Conductors connected to terminals complying with the Department's standard specification for "WIRING TERMINALS". Section C9, need not be soldered or ferruled. Connections to circuit-breakers, isolators or contactors shall be made by one of the following methods:

(a) A ferrule of the correct size,

(b) soldering the end of the conductor, or

(c) winding a conductor strand tightly around the end to totally cover the end.

All conductors terminating on meters, fuse holders and other equipment with screwed terminals shall be fitted with lugs. The lugs shall be soldered or crimped to the end of the conductor. The correct amount of insulation shall be stripped from the end to fit into the terminal. Strands may not be cut from the end of the conductor.

8.8 IDENTIFICATION

8.8.1 The colour of the conductors for all 220/250 V circuits shall correspond to the colour of the supply phase for that circuit. Neutral conductors shall be black.

8.8.2 All other conductors in the board, supplying control circuits, etc. shall be coded in colours other than those specified above. A colour code shall be devised for each board and the colour code shall be shown on the wiring diagrams.

8.8.3 All conductors that terminate at wiring terminals and all conductors used for the internal wiring of the switchboard, shall further be identified at both ends by means of durable cable marking ferrules. PVC or other tape is not acceptable.

8.8.4 The numbers on the markers shall be shown on the wiring diagrams.

9. PAINT FINISH

Metal components of the framework, panels and chassis shall be painted in accordance with the Department's "STANDARD PAINT SPECIFICATION". Section C39.

10. LABELLING

10.1 Care shall be taken to ensure that all equipment is fully labelled and that accurate descriptions and safety warning notices appear in both official languages.

10.2 MATERIAL

Engraved plastic or ivory sandwiched strips shall be used throughout. The strips shall bear white lettering on a black background for normal labels and red letters on a white or yellow background for danger notices.

10.3 MAIN SWITCHBOARDS

Main switchboards and sub-main switchboards shall be supplied with the following bilingual labels:

(a) Number and allocation of switchboard. Example:

CONTROL BOARD A4

BEHEERBORDA4

Lettering: at least 10 mm high prominent position. Label on the outside in a prominent position.

(b) Designation of busbar sections. Example:

BUSBAR SECTION 2

GELEISTAMSEKSIE2

Lettering: at least 10mm high. Label on the outside in a prominent position.

(c) Designation of all switchgear including circuit-breakers, isolators, contactors, etc. If the current rating of circuit-breakers is not clearly marked on the equipment, the value shall be indicated on the engraved label. Example:

SUPPLY TO BOARD C3 TOEVOER NA BORD C3PUMP

SUPPLY
POMPTOEVOER

Letters at least 5mm high. Label on the outside of the switchboard.

(d) All other equipment including meters, instruments, indicator lights, switches, push-buttons, circuit-breakers, fuses, contactors, control relays, protection relays, etc. shall be identified. The function of the equipment and circuits shall be clearly indicated. The main switch shall be labelled as such and designated:

"SWITCH OFF IN CASE OF EMERGENCY"
"SKAKEL AF IN NOODGEVAL"

Flush mounted equipment within doors or front panels shall be identified with labels fixed to the doors or front panels respectively. The labels for equipment installed behind panels, shall be fixed to the chassis close to the equipment. If this equipment is positioned too close together to accommodate descriptive engraved labels, the equipment may be identified by a code or number on an engraved label which shall be fixed close to the equipment. The code number shall be identified on a legend card which shall be installed on the switchboard behind a plastic or other protective cover.

10.4 OTHER SWITCHBOARDS

All equipment on switchboards shall be identified with the necessary bilingual labels. The circuit numbers shall appear at grouped single-pole circuit-breakers. The circuit numbers shall correspond to the circuit numbers on the final installation drawings. The above-mentioned circuits shall be identified on a legend card, which shall be installed on the inside of the switchboard door, or in any other position where it can conveniently be observed. All fuses, including instrument fuses, shall have labels stating function, fuse rating and duty or type where applicable. All other equipment shall be identified separately and their functions shall be clearly indicated.

10.5 FIXING OF LABELS

10.5.1 Labels shall not be fixed to components or trunking but to doors, panels, chassis or other permanent structures of the switchboard.

10.5.2 Engraved strips shall be secured to facilitate a neat alteration of the designation of the labels. Sufficient fixing points shall be provided to prevent labels from warping. Labels in slotted holders shall be secured in position to prevent unauthorised removal. Labels may be secured by the use of brass bolts and nuts, self-tapping screws, slotted label holders or pop-rivets.

11 TESTS

11.1 The Department shall be notified when the mechanical construction of the switchboard, i.e. frame, panels and base frame, is complete in order that it may be inspected at the factory.

11.2 Function tests of all equipment, control and interlocking circuits shall be conducted to the satisfaction of the Department. Testing equipment and facilities including instruments, dummy loads and additional switchgear and cables shall be provided by the Contractor at no extra cost. The Department shall be notified in writing two weeks in advance of any test to be conducted, to allow its representative to be present at such tests. A complete report on the tests shall be handed to the Department.

12. DRAWINGS

12.1 DRAWINGS FOR APPROVAL

A set of three prints of the shop drawings for the switchboards shall be submitted to the Department for approval before the boards are manufactured. The following information shall be presented:

(a) A complete wiring diagram of the equipment on the boards.

(b) A complete layout of the arrangement of the switchboards indicating all equipment dimensions and the construction of the boards. The positions and method of fixing and sizes of busbars shall be shown.

(c) All labelling information in both the official languages on a separate sheet.

(d) The make, catalogue number and capacity of all equipment such as isolators, circuit-breakers, fuses, contactors, etc.

The approval of drawings shall not relieve the Contractor of his responsibility to the Department to supply the switchboards according to the requirements of this Specification.

12.2 FINAL DRAWINGS

A complete set of "as-built" transparent drawings of all switchboards shall be submitted to the Department within two weeks after delivery of the boards. The following information shall be presented:

(a) Item (a) to (d) of the previous paragraph.

(b) Terminal strip numbers, numbers and colours of conductors connected to the terminal strips and numbers and colours of the conductors utilised for the internal wiring.

(c) A separate schedule of all equipment.

12.3 MANUALS

Three sets of manuals for all specified main and sub-main switchboards shall be supplied to the Department at no extra cost. These manuals shall include the following information:

(a) Complete information on the operation of the equipment.

(b) Complete information for maintenance of the equipment.

(c) Brochures and ordering information.

(d) A complete equipment list indicating quantities and relevant catalogue numbers.

12.4 COMPLETION

The supply contract shall be regarded as incomplete until all tests have been conducted successfully and all drawings and manuals have been handed to the Department.

SECTION C18

C18 LOW VOLTAGE DISTRIBUTION CUBICLES (KIOSKS)

1. GENERAL

This specification covers the manufacture of distribution kiosks for general reticulation and distribution systems in normal environmental conditions for three-phase, four-wire, 400/231V, 50 Hz systems.

2. SIZE

Kiosks shall be of ample size to accommodate the specified equipment and provide space for future requirements as specified.

3. MOISTURE AND VERMIN

3.1 Kiosks shall be weatherproof. To prevent the ingress of water onto live equipment, the door entry surrounds shall have a channel shape, at least 12mm deep, to accommodate the door edge.

3.2 The roof shall be constructed with an overhang above non-continuous panelling and shall be provided with a drip-edge.

4. VENTILATION

4.1 Two ventilation grilles or slots, approximately 150 x 125mm, vermin proofed and insect proofed by means of 1,5mm brass mesh or perforated steel plate spot-welded on the inside, shall be provided on the top and bottom of both side panels.

4.1 The construction of the grilles shall prevent the ingress of rain or water.

5. FIBREGLASS CANOPIES

5.1 APPLICATION

Where specified and for all kiosks to be installed within 50km of the coast and in corrosive industrialatmospheres, the canopy and doors shall be manufactured of fibreglass.

5.2 CONSTRUCTION

5.2.1 The laminate shall be constructed to SANS 141.

5.2.2 An outer isophalec resin gelcoat with a minimum thickness of 0,4mm and ultraviolet absorption properties to prevent degradation of the surface from exposure to the sun shall be provided.

5.2.3 The gelcoat shall be backed by multiple layers of chopped strand mat glass rendering not less than 1,2kg/m^2. The strength shall be increased to 1.3 kg/m^2 on kiosks with panelling larger than 500 x 500mm.

5.2.4 The fibreglass shall be thoroughly impregnated with polyester resin. The resin should preferably be clear.

5.2.5 The resin to fibreglass ratio shall not be less than 2.5:1 and not more than 3.0:1.

5.2.6 Air entrapped between the glass mat layers shall be thoroughly worked out. The laminate must be free of air bubbles and voids.

5.2.7 All edges shall be reinforced with an additional 700 g/m^2 of fibreglass.

5.2.8 All large surfaces, wider than 300mm, shall be reinforced or panelled to improve stiffness and rigidity.

5.2.9 A resin coat shall be applied to the inside of the kiosk to cover the fibre pattern.

5.2.10 Brass or steel backing plates shall be laminated into the fibreglass at hinge points, locking mechanism catch support areas, door restraint fixing points and all other points which will be subjected to mechanical stresses.

5.2.11 Doors shall be adequately braced, reinforced, ribbed or double laminated with an air gap between the two layers of laminate to ensure rigidity.

5.2.12 The fibreglass canopy shall be fixed to the internal equipment support frame with bolts accessible through the door only.

5.3 FINISH AND COLOUR OF FIBREGLASS KIOSKS

5.3.1 The outside surface of the kiosk shall nave a glossy, smooth finish to ensure good weathering. To obtain this the manufacturer shall ensure that the mould is smooth, free of voids, hairline cracks, pores or other defects.

5.3.2 Compound rubbing or sanding of the outside surface will not be permitted.

5.3.3 Pigments shall be added to the outer gelcoat to obtain a matching colour to SANS 1091 "AVOCADO GREEN" colour C12 or "LIGHT STONE", colour C37.

5.3.4 Fibreglass kiosks shall not be painted.

6. SHEET STEEL CANOPIES

6.1 Where specified the canopy and doors shall be manufactured of either mild steel as 3Cr12 stainless steel to the following requirements:

6.1.1 A metal framework shall be manufactured from solid angle iron, channel iron or 2,5mm minimum folded sheet steel.

6.1.2 Joints shall be non-continuously butt welded. Welds shall be ground smooth and the joint wiped with plumber's metal in order to provide a smooth finish.

6.1.3 Side panels, doors and the roof shall be manufactured from 2mm minimum sheet steel. The panels shall have upturned edges which are recessed in the frame or which fit over lips on the frame. The side panels may be either bolted or welded to the frame or form part of the folded metal frame.

6.1.4 The roof of the cubicle shall be removable and shall be fitted by means of bolts which shall be accessible from inside the cubicle only.

6.1.5 All panels and doors shall be suitably braced and stiffened to ensure rigidity and to prevent warping.

6.1.6 The steel canopy and framework shall be fixed to the base frame by four M16 high tensile steel bolts.

6.2 FINISH AND COLOUR OF SHEET STEEL KIOSKS

6.2.1 Metal components of the framework, panels and doors shall be painted in accordance with the Department's "STANDARD PAINTING SPECIFICATION", Section C39.

6.2.2. The colour shall be "AVOCADO GREEN", colour C12 or "LIGHT STONE", colour C37 of SANS 1091. Atin of matching touch-up paint (not smaller than 500ml) shall be provided with each consignment.

7. CAST IRON KIOSKS

7.1. Where specified the cubicle panels and doors shall be manufactured from cast iron to the following requirements:

7.1.1 A metal framework shall be manufactured from solid angle iron or channel iron.

7.1.2 Cast iron panels shall be bolted to the frame work and shall be replaceable with standard cast iron panels.

7.1.3 The panels shall be bolted to the frame from the inside of the cubicle. Bolts or nuts on the outside of the cubicle are not acceptable.

7.1.4 The roof of the cubicle shall be one casting and shall be bolted in position from inside the cubicle.

7.1.5 The minimum thickness of the cast iron panels and doors shall be 6mm

7.1.6 All cast iron panels and doors shall be fettled prior to painting.

7.2 FINISH AND COLOUR OF CAST IRON KIOSK:

7.2.1 Metal components of the framework, panels and doors shall be painted in accordance with the Department's "STANDARD PAINTING SPECIFICATION". Section C39.

7.2.2 The colour shall be "AVOCADO GREEN".colour C12 or "LIGHT STONE", colour C37 of SANS 1091. A tin of matching touch-up paint (not smaller than 500ml) shall be provided with each consignment.

8. DOORS

8.1 Doors shall be fitted to the front and to the rear of each cubicle. The doors shall provide free access to equipment which has to be operated and shall provide a full view of all meters. Cubicles wider than 700mm shall be provided with double doors.

8.2 Doors shall have well returning edges to fit into the channel of the door entry surrounds. Refer to par. 3.1 and 6.1.3.

8.3 Doors shall swivel through 135.

8.4 Brass hinges shall be used to hang the doors. The hinges shall be bolted to the canopy with brass bolts and nuts. Bolt heads or nuts shall not protrude beyond the outer surface of the kiosk. Nylon, aluminium or piano hinges are not acceptable.

8.5 Doors shall be fitted with lever locks with a 135° movement. The locking mechanism shall have a catch on the rear which catches behind the frame or door entry surround. The locking mechanism as well as the catch support area shall be backed with brass or galvanised steel plates. The locking mechanism shall be lockable by padlocks. Padlocks will be provided by the Department.

8.6 The locking mechanism shall be made of brass or stainless steel.

8.7 Door restraints shall be provided. Cloth or canvas straps are not acceptable. The fixing points of the restraint at both the door and canopy shall be reinforced.

8.8 At least three hinges shall be supplied on steel doors higher than 12mm.

8.9 Doors shall be fitted with neoprene or equivalent seals.

8.10 Metal doors shall be earth bonded to the frame by means of a copper braided strap, tooth washers, bolts and nuts.

9. EQUIPMENT SUPPORT FRAME

9.1 A free standing, angle iron or similar type rigid support framework shall be provided.

9.2 The frame shall be bolted down on the base by four M16 high tensile steel bolts. The holding-down bolts shall be accessible from the inside of the cubicle only. The frame of sheet steel canopies may be bolted to the canopy framework.

9.3 A galvanised steel cable gland plate shall be bolted to the bottom of the frame across the full width of the cubicle to cover the cable entry opening in the base.

9.4 The gland plate shall be suitably punched to accept the number and size of cables specified.

9.5 All steelwork shall be hot-dip galvanised in accordance with SANS 32&121.

9.6 A panel of resin bound synthetic wood or other suitable dielectric material shall be provided for the mounting of all equipment and busbars. Impregnated hardboard, other treated or untreated wood products are not acceptable.

9.7 Alternatively, all equipment and busbars shall be flush mounted within a purpose-made sheet metal frame enclosed by a machine punched removable front panel through which the operating handles of the equipment protrude. Care shall be exercised that the rear studs of circuit-breakers are properly insulated from the steel chassis. Miniature circuit-breakers may be installed in clip-in trays mounted on the frame.

10. CONCRETE BASES AND BASE FRAMES

10.1 To ensure stability of the kiosk after installation, it shall be mounted on a base frame which, in turn, shall be bolted to a concrete base cast into the bottom of the cable trench.

10.2 The base frame shall be constructed of angle iron, at least 50 x 4mm thick and shall be of welded construction hot-dip galvanised and coated with epoxy resin tar.

10.3 The vertical height of the box frame shall be at least 900mm and the construction shall be such as to provide a rigid support for the kiosk.

10.4 The base frame shall protrude to a maximum height of 200mm above ground level. Provision shall be made for the protection and concealing of the cables entering the kiosk and to prevent access of animals and vermin.

10.5 The base frame shall be secured by at least four M16 bolts to the support frame of the kiosk and four M16 anchor bolts and nuts to the concrete base. The bolts, nuts and washers shall be galvanised and supplied with the kiosk.

10.6 All galvanising shall be to SANS 32&121.

10.7 The kiosk manufacturer shall supply a detailed drawing of the base frame and the concrete base required.

10.8 Alternative designs and materials for the base (or root) of the kiosk will be considered but full details must be submitted for approval by the Department.

11. BUSBARS

See Section C15 for details.

12. WIRING

See Section 17.8 for details

13. MOUNTING OF EQUIPMENT

13.1 The mounting of equipment shall comply with SANS 1765 where applicable. Equipment shall be fixed to the support panel with bolts, nuts, washers and spring washers or self-locking nuts with washers. Self- tapping screws are not acceptable.

13.2 Equipment shall be arranged and grouped in a logical fashion.

13.3 All equipment shall be flush mounted behind panels with only circuit-breaker and isolator toggles and meter faces protruding. The front panels shall be secured in position by 6mm studs and hexagonal chromed brass dome nuts and washers or hank nuts fasteners. Self-tapping or similar screws are not acceptable.

13.4 Blanking plates shall be fitted over slots intended for future equipment. These plates shall be fixed so that fixing holes do not need to be drilled through the front panel.

14. ACCESS

All equipment, busbars and wiring shall be completely accessible with the door open and the back door and front panel removed. In the case of fibreglass kiosks the complete canopy shall be removable.

15. LABELLING

15.1 All equipment shall be fully labelled and accurate descriptions shall be given in both official languages.

15.2 Engraved brass shall be used for labels. The labels shall be riveted to the kiosks.

15.3 The following labels shall be supplied as a minimum requirement:

15.3.1 Number and allocation of kiosk, e.g. KIOSK B26

(Lettering: At least 10mm high. Label on the outside in a prominent position).

15.3.2 Designation of circuit i.e. circuit-breaker, isolator, meter, etc. e.g.

HOUSE 473
HUIS473

PUMP SUPPLY
POMPTOEVOER

(Lettering: At least 5mm high. One label installed directly below each item of equipment pertaining to the particular circuit shall be provided).

15.3.3 The main switch shall be marked in accordance with the regulations.

15.3.4 The function and circuits of all other equipment shall be clearly identified. Flush mounted equipment within the front panel shall be identified by labels fixed to the front panel. The labels for all equipment installed behind panels shall be fixed to the support panel close to the equipment.

15.3.5 The labels shall be secured by means of rivets. Self-tapping screws are not acceptable. Labels shall not be glued to their mounting positions. Sufficient rivets shall be provided to prevent labels from warping.

15.3.6 All label designations shall be confirmed with the Department before manufactured.

16. NOTICES

At least one with the words "DANGER/INGOZI/GEVAAR" shall be mounted outside on the front of the kiosk. This notice shall be riveted to the steel or cast-iron door so that it cannot easily be removed. Brass rivets shall be used. The notice shall be laminated into the fibreglass door in the case of fibreglass kiosks.

17. INSPECTION

The Department shall be notified at least two weeks in advance of the completion of the kiosks in order that an inspection may be carried out before delivery.

18. DRAWINGS

18.1 DRAWINGS FOR APPROVAL

18.1.1 A set of three prints of the shop drawings of the cubicles shall be submitted to the Department for approval before the cubicles are manufactured. The following information shall be presented:

(a) Schematic and wiring diagrams of the cubicles.

(b) A complete layout of the arrangement of the cubicles showing all equipment dimensions and constructional details. The positions and method of fixing of busbars shall be shown.

(c) All labelling information in both the official languages on a separate sheet.

(d) The makes, catalogue numbers and capacities of all equipment.

(e) A detail drawing of the concrete plinth, showing concrete mixes, dimensions, sizes, steel reinforcing details and holding-down bolt fixing details.

18.1.2 The approval of drawing shall not relieve the Contractor of his responsibility to the Department to supply the cubicles according to the requirements of this Specification.

18.2 FINAL DRAWINGS

A complete set of "as built" drawings of the cubicles shall be submitted to the Department within two weeks after delivery of the kiosks. The information contained in par. 18.1.1 shall be provided.

18.3 COMPLETION

The supply contract shall be regarded as incomplete until all drawings have been handed to the Department.

SECTION C20

C20 MOULDED-CASE CIRCUIT-BREAKERS

1. This section covers single or multi pole moulded case circuit breakers for use in power distribution systems, suitable for panel mounting, for ratings up to 1 000 A, 600 V. 50 Hz.

2. The circuit breakers shall comply with SANS 156.

3. The continuous current rating, trip rating and rupturing capacity shall be as specified.

4. The contacts shall be silver alloy and shall close with a high-pressure wiping action.

5. Where specified, the circuit breaker shall be capable of accommodating factory fitted shunt trip or auxiliary contact units or similar equipment.

6. The operating handle shall provide clear indication of "ON", "OFF" and "TRIP" positions.

7. The mechanism shall be of the TRIP-FREE type preventing the unit from being held in the ON position under overload conditions.

8. All moulded case circuit breakers in a particular installation shall as far as is practical be supplied by a single manufacturer.

9. The incoming terminals of single pole miniature circuit breakers shall be suitable for connection to a common busbar.

10. The circuit breaker shall have a rating plate indicating the current rating, voltage rating and breaking capacity.

11. Extension type operating handles shall be provided for units of 600 A rating and above.

SECTION C24

C24 EARTH LEAKAGE RELAYS

1. Earth leakage relays shall be single or three-phase units with a sensitivity of 30mA with associated circuit breaker or on-load switch for use on 220/250V single phase or 380/433 V three phase, 50 Hz, supplies.

2. The units shall be suitable for installation in switchboards in clip-in trays or bolted to the chassis.

3. The earth leakage relay shall function on the current balance principle and shall comply with SANS 767 as amended, and shall bear the SANS mark. Integral test facilities shall be incorporated in the unit.

4. Circuit breakers with trip coils used integrally with earth leakage units (two pole for single phase units and three pole for three phase units) shall comply with SANS 156.

5. On-load switches used integrally with earth leakage units (two pole for single-phase units and three pole for three phase units) shall comply with SANS 60497.

6. The fault current rating of the unit shall be 2,5kA or 5kA as required, when tested in accordance with SANS 156.

SECTION C28

C28 TRIPLE POLE ON-LOAD ISOLATORS

1. This section covers switches suitable for panel mounting for use in power distribution systems up to 600 V, 50 Hz. Switches for motor isolation are included.

2. The switches shall be of the triple pole, hand operated type complying with SANS 60947.

3. The switches shall have a high-speed closing and opening feature.

4. The switches shall be suitably rated for the continuous carrying, making and breaking of the rated current specified as well as the through-fault current capacity as specified.

5. To distinguish the switches from circuit breakers the operating handles shall have a distinctive colour and/or the switch shall be clearly and indelibly labelled "ISOLATOR".

SECTION C30

C30 TIME SWITCHES AND PHOTOCELLS

1. Time switches shall be of single-pole type, suitable for 220/250 V systems, with contacts rated for the duty to be performed with a minimum rating of 15A. Contacts shall be of high-quality material, e.g. silver-plated or solid silver.

2. The timer shall have a minimum of 24 hours reserve under full load.

3. An external manual bypass switch shall be provided to permit the circuit to be switched "ON" or "OFF" manually without affecting the operation of the time switch.

4. The time switch shall have a 24-hour dial, with day and night indication.

5. The time switch shall be housed in a dust-tight moulded plastic or metal case, consisting of a plastic clip-on front cover and a moulded plastic or metal base. Time switches to be used for surface mounting on walls shall be provided with a suitably positioned 20mm conduit knock-out.

PHOTOCELLS

1. GENERAL

1.1 The switches shall be used for the control of street lights and shall be provided with switch contacts able to carry at least 5 A. The current during no-load conditions may not exceed 50 mA.

1.2 The units shall be suitable for 240 V + 6%. 50Hz. single-phase alternating current.

2. CONSTRUCTION

2.1 The units shall be weather and vibration resistant as they are to be mounted on top of streetlightluminaires. The design shall be of such a nature that the units will be able to withstand both hail damage and damage by stone-throwers. If the units do not meet with these requirements, separate wire screens shall be provided for this purpose.

2.2 The units shall be provided with a standard NEMA plug and socket. The socket shall have a bracket for mounting on a pole.

2.3 All components shall be treated to be corrosion resistant.

3. OPERATING CONDITIONS

3.1 The units shall be suitable for operating under dusty conditions between temperatures of -5 EC and 55 EC.

4. TECHNICAL REQUIREMENTS

4.1 units shall switch on when the light intensity drops to 15 lux + 20% and shall switch off when the light intensity again reaches 40 lux + 20%.

4.2 When the unit is in the "on" position there must be a delay of one minute if it were to switch off in the case of a sudden increase in the light intensity.

SECTION C33

C33 INDOOR SURGE ARRESTORS

1. Surge arrestors shall comply with the requirements of SANS 61643 or VDE 0675.

2. Surge arrestors shall be suitable for installation at altitudes of up to 1800m above sea level.

3. The unit shall be contained within a thermoplastic or cast resin housing and all internal components shall be fully sealed in.

4. The unit shall be supplied complete with a galvanised steel mounting bracket for convenient mounting onto the metalwork or tray of a switchboard.

5. Alternatively, the unit shall be of the type which can be mounted into the clip-tray of a switchboard.

6. Surge arrestors shall be provided in all cases where a switchboard is supplied directly from an overhead line.

7. In other cases, surge arrestors, if required, will be specified in the Detail Technical Specification.

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SECTION C39

C39 STANDARD PAINT SPECIFICATION

1. FINISH REQUIRED

Metalwork of electrical equipment such as switchboards, equipment enclosures, sheet steel luminaire components, purpose-made boxes, etc. shall be finished with a high-quality paint applied according to the best available method. Baked enamel, electrostatically applied powder coating or similar proven methods shall be used.

2. CORROSION RESISTANCE

Painted metal shall be corrosion resistant for a period of at least 168 hours when tested in accordance with SANS 166.

3. EDGES

Care shall be taken to ensure that all edges and comers are properly covered.

4. SURFACE PREPARATION

Surface preparation shall comply with SANS 10064. Prior to painting, all metal parts shall be thoroughly cleaned of rust. mill scale, grease and foreign matter to a continuous metallic finish. Sand or shot blasting or acid pickling and washing shall be employed for this purpose.

5. BAKED ENAMEL FINISH

5.1 Immediately after cleaning all surfaces shall be covered by a rust inhibiting, tough unbroken metal-phosphate film and then thoroughly dried.

5.2 Within forty-eight (48) hours after phosphatising, a passivating layer consisting of a high-quality zinc chromate primer shall be applied, followed by two coats of high-quality alkyd-based baked enamel.

5.3 The enamel finish on metal luminaire components shall comply with SANS 783, Type III.

5.4 Other metal parts e.g. switchboard panels, etc., shall comply with SANS 783, Type IV with a minimum paint thickness after painting of 0,06mm. In coastal areas, the dry film thickness shall be increased to at least 0,1mm.

5.5 The paint shall have an impact resistance of 5,65 J on cold-rolled steel plate and a scratch resistance of 2kg

6. POWDER COATED FINISH (NOT TO BE USED LESS THAN 50KM FROM SEASIDE)

6.1 Immediately after cleaning the metal parts shall be pre-heated and then covered by a microstructure paint powder applied electrostatically.

6.2 The paint shall be baked on and shall harden within 10 minutes at a temperature of 190 ℃.

6.3 The minimum paint thickness after baking shall be 0,05mm. The dry film thickness shall be increased in coastal areas. The paint cover shall have an impact resistance of 5.65 J on cold-rolled steel plate and a scratch resistance of 2kg.

7. TOUCH-UP PAINT

In the case of switchboards and larger equipment enclosures, a tin of matching touch-up paint not smallerthan 1 litre shall be provided.

8. COLOURS

8.1 The colour of HV switchboards and HV switchgear enclosures shall be "DARK ADMIRALTY GREY", colour G12 of SANS 1091.

8.2 The colour of LV switchboards and equipment enclosures in buildings shall be "LIGHT ORANGE", colour B26 of SANS 1091 as recommended in SANS 10140, Part II unless specified to the contrary.

8.3 The colour of LV distribution kiosks and miniature substations shall be "AVOCADO GREEN", colour C17 or "LIGHT STONE", colour C37 of SANS 1091.

8.4 The standby power section of LV switchboards in buildings shall be coloured "SIGNAL RED", colour All of SANS 1091.

8.3 Switchboards for No-Break Power Supplies or sections of switchboards containing No-break power supplies, shall be coloured "DARK VIOLET", colour F06 or "OLIVE GREEN" colour H05 of SANS 1091.

EXTENT OF WORK

The specification covers the complete installation and commissioning on site in full working order of an emergency diesel generator to provide essential loads emergency electrical power supply.

Tenderers may quote for their standard equipment complying with the specification and any deviation from the specification must be fully detailed.

A 25kVA (open) emergency generator set is currently installed for the supply of emergency power. The 25kVA generator set is not sufficient to supply all essential loads in the building. Hence, must be decommissioned and replaced with a 500kVA generator.

From the findings, the contractor shall perform the following tasks on the 25kVA generator:

- Disconnect fully the existing generator and prepare the room for the new generator.
- Liaise with the Client and DPW and arrange for the transportation of the decommissioned generator to the nominated store room or new installation site.

INSTALLATION

Contractor shall use electrical specification for wiring, ducting, termination for the complete installation and wiring of the new generator set.

WARNING NOTICES

Tenderers must include in their tender for all notices that are required under the safety acts applicable to the area in which the installation is carried out.

Notices, in official languages, must be installed in the plant rooms. The contents of these notices are summarised below.

a) Unauthorised entry prohibited.
b) Unauthorised handling of equipment prohibited.
c) Procedure in case of electric shock.
d) Procedure in case of fire.

The successful tenderer must consult the Occupational Health and Safety Act 83 of 1993 and get approval of the wording from the Department's representative, prior to ordering the notices. Lettering must be black on a yellow background. Notices (a) must be installed outside next to the entrance of the plant room and (b-d) inside the plant room. In the plant room, a clearly legible and indelible warning notice must be mounted in a conspicuous position.

The motive shall be made of a non-corrodible and non-deteriorating material, preferable plastic, and must read as follows:

DANGER: This engine starts automatically. Turn selector switch on control board to "OFF" before working on the plant.

OPERATIONAL INSTRUCTION

After completion of the installation, and when the plant is in running order, the successful tenderer will be required to instruct an attendant in the operation of the plant, until he is fully conversant with the equipment and handling thereof.

Three copies of maintenance, fault–localizing and operating manuals are to be handed over to a representative of the client.
The set is required to supply the non-essential loads in the case of a mains power failure.

The set shall be fully automatic i.e. it shall start when any one phase of the main supply fails or get switched and shall shut down when the normal supply is re-established. In addition it shall be possible to manually start and stop the set by means of pushbuttons on the switchboard.

The automatic control shall make provision for three consecutive starting attempts. Thereafter the set must be switched off, and the start failure relay on the switchboard must give a visible and audible indication of the fault.

To prevent the alternator being electrically connected to the mains supply when the mains supply is on and vice versa, a safe and fail proof system of suitably interlocked contactors shall be supplied and fitted to the changeover switchboard.

= END OF SPECIFICATION =

PART 4: BILLS OF QUANTITIES

PREAMBLE

TYPICAL ITEMS/PREAMBLES TO BE INSERTED IN THE BILLS OF QUANTITIES

1. The descriptions in these bills of quantities shall be read in conjunction with the specification and drawings.

2. The unit rate for each item in the Bills of Quantities shall include for all materials, labour, profit, transport, etc., everything necessary for the execution and complete installation of the work in accordance with the description.

3. The Bills of Quantities shall not be used for ordering purposes. The Contractor shall check the lengths of cables and conductors on site before ordering any of the cables. Any allowance for off-cuts shall be made in the unit rates.

4. The rates shall **exclude** Value-Added Tax and the total carried over to the final summary in "Summary of Bill of Quantities".

5. All material covered by this **Specification** shall, wherever possible, be of South African manufacture and **SABS approved**.

6. In case an electronic copy of the BOQ is issued with the tender, alterations to the BOQ items is prohibited and may lead to disqualification.

{NB: The supply and installation of material and equipment must be measured separately}.

7. **P&G's should be allowed for in the tendered rates, sub-contractor to ensure the following items is included in his tendered rates.**

FIXED CHARGE & VALUE RELATED ITEMS
Contractual requirements Establishment of facilities on site
Office Equipment
Store
Tools & equipment
Services, communications and access
Other
Removal of site establishment on completion

TIME- RELATED ITEMS
Contractual requirements
Operation & maintenance of facilities on site Office Equipment
Store
Tools & equipment
Services, communications and access
Other

ADMINISTRATIVE
Insurance
Cost of Guarantee
Company & head office overhead costs

GENERAL COSTS
Manuals as per specification
Inspection and handing over.
Test and commissioning of entire electrical installation.
Comply with all checklist provided under the specifications
P&G's as per Main contractors conditions
Setting out of the electrical installation

PART 5: ELECTRICAL WORK MATERIAL SCHEDULE

The Contractor shall complete the following schedules and submit them to the Electrical Engineer within 21 days of the date of the acceptance of the tender.

The schedules will be scrutinised by the Electrical Engineer and should any material offered not comply with the requirements contained in the specification, the 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.	On load isolators without trips		
4.	Contactors 1P, 2P, 3P		
5.	Earth leakage relays 1 & 3 phase		
6.	H.R.C. fuse switches		
7.	Kilowatt hour meter		
8.	Current transformers		
9.	Voltmeter		
10.	Maximum demand ammeter		
11.	Daylight sensitive switch		
12.	Time switch		
13.	Conduit		
14.	Conduit boxes		
15.	Power skirting		
16.	Surface switches		
17.	Watertight switches		
18.	16A flush socket outlets		
19.	16A surface socket outlets		
20.	16A watertight socket outlets		
21.	LED luminaires		
	Type D1 Panel		
	Type G Vapourproof		
	Type J floodlight		
	Type A and A1 Rough guard		
	Type LED Lamp		
22.	Bulkhead fittings: Type H		
23.	Occupancy detectors		
24.	Convection heater		
25.	SWA cables		
26.	Cable trunking		
27.	PVCA cable		
28.	Cable trays		

PARTICULARS OF ELECTRICAL CONTRACTOR

(To be completed by tenderers and submitted together with the tender form).

TENDER NO:_____ REFERENCE: _____

SERVICE:

_____

NAME OF ELECTRICAL CONTRACTOR: _____

ADDRESS _____

_____

ELECTRICAL CONTRACTOR'S REGISTRATION NUMBER AT THE DEPARTMENT OF LABOUR.
(ATTATCH CERTIFIED COPY)

_____

_____ _____

DATE SIGNATURE OF TENDERER

Please ensure that DPW -22(EC) Particulars of electrical contractor is inserted in main tender document.

PART 6: DRAWINGS

The drawings are schematic and do not show the exact dimensions or positions of equipment. Tenderers must satisfy themselves that the equipment offered by them will fit in the available space and can be positioned so that access for maintenance, repair or removal is not encumbered.

The successful tenderer shall submit, via the Principal Contractor to the Client/Engineer two copies of the detailed working drawings showing the required conduits, conduit boxes, position of equipment, cable trays, ducts, etc. These drawing shall only be created after a thorough site inspection and discussions with the electrical sub-contractor to ensure that the conduits indicated on the drawings will be feasible to install. It must also be ensured that the complete installation is according to the specifications and standards.

Approval by the Client/Engineer of these drawings submitted by the Sub-contractor via the Principal Contractor shall not relieve him of his liability to carry out the work in accordance with the requirements of the contract documents. NOTE: Final dimensions must be taken on site before any equipment or material is either purchased or manufactured.

The tender drawings must be returned with the tender. Any proposed alterations to the architectural layout shall be indicated on these drawings in red ink and may only be submitted as an alternative offer.

Where air-conditioning ducts, lights, etc. are being installed in the space to be protected, the successful tenderer shall consult the Client / Engineer via the Principal Contractor for any information in this regard before completing his detailed working drawings.

Drawing schedule and numbers shall be as follows:

#	**Drawing Description**	**Drawing Number**	**Purpose**	**Size**
1	Distribution Panels Layout – Basement Floor	BHC-000-r0	Information	A0
2	Distribution Panels Layout – Ground Floor	BHC-001-r0	Information	A0
3	Distribution Panels Layout – First Floor	BHC-002-r0	Information	A0
4	Distribution Panels Layout – Second Floor	BHC-003-r0	Information	A0
5	Cable/Wire Way Layout – Basement Floor	BHC-004-r0	Tender	A0
6	Cable/Wire Way Layout – Ground Floor	BHC-005-r0	Tender	A0
7	Cable/Wire Way Layout – First Floor	BHC-006-r0	Tender	A0
8	Cable/Wire Way Layout – Second Floor	BHC-007-r0	Tender	A0
9	Small Power Layout – Basement Floor	BHC-008-r0	Tender	A0
10	Small Power Layout – Ground Floor	BHC-009-r0	Tender	A0
11	Small Power Layout – First Floor	BHC-010-r0	Tender	A0
12	Small Power Layout – Second Floor	BHC-011-r0	Tender	A0
13	Small Power Layout (HVAC) – Basement Floor	BHC-012-r0	Tender	A0
14	Small Power Layout (HVAC) – Ground Floor	BHC-013-r0	Tender	A0
15	Small Power Layout (HVAC) – First Floor	BHC-014-r0	Tender	A0
16	Small Power Layout (HVAC) – Second Floor	BHC-015-r0	Tender	A0
17	Lighting Layout – Basement Floor	BHC-016-r0	Tender	A0
18	Lighting Layout – Ground Floor	BHC-017-r0	Tender	A0
19	Lighting Layout – First Floor	BHC-018-r0	Tender	A0
20	Lighting Layout – Second Floor	BHC-019-r0	Tender	A0
21	Lightning Protection Layout – Roof Plan	BHC-020-r0	Tender	A0
22	DB Single Line Layout – DB MAIN LV	BHC-021-r0	Tender	A0
23	DB Single Line Layout – DB BLOCK A	BHC-022-r0	Tender	A0
24	DB Single Line Layout – DB BLOCK B	BHC-023-r0	Tender	A0
25	DB Single Line Layout – DB BLOCK C	BHC-024-r0	Tender	A0
26	DB Single Line Layout – DB SECURITY & DB M1	BHC-025-r0	Tender	A0
27	DB Single Line Layout – DB M2 & DB A3	BHC-026-r0	Tender	A0
28	DB Single Line Layout – DB M3 & DB A4	BHC-027-r0	Tender	A0
29	DB Single Line Layout – DB B1 & DB HVAC	BHC-028-r0	Tender	A0
30	DB Single Line Layout – DB C-G1 & DB C-G2	BHC-029-r0	Tender	A0
31	DB Single Line Layout – DB M4 & DB A5	BHC-030-r0	Tender	A0
32	DB Single Line Layout – DB M5 & DB B2	BHC-031-r0	Tender	A0
33	DB Single Line Layout – DB A2 & DB A6	BHC-032-r0	Tender	A0

34	DB Single Line Layout – DB A1 & DB B3	BHC-033-r0	Tender	A0
35	DB Single Line Layout – DB	BHC-034-r0	Tender	A0
36	DB Single Line Layout – DB	BHC-035-r0	Tender	A0

(c/my doc/qs/elect.doc/sample spec(pw346)-03-2018)