TENDER NO.: PMSUFS/01/19/DCS-ELEC-CONTRACTOR

REQUEST FOR QUOTATION FROM SUPPLIERS WITH CIDB GRADING OF 3EB OR HIGHER (ELECTRICAL BUILDING) FOR SUPPLY , INSTALLATION AND MAINTENANCE OF BACK-UP POWER GENERATOR AT FRANKFORT CORRECTIONAL CENTRE IN THE FREE STATE

CLOSING DATE & TIME: 11th APRIL 2024, 12H00

NAME OF TENDERER:.....

ISSUED BY:

THE INDEPENDENT DEVELOPMENT TRUST

FREE STATE REGIONAL OFFICE
DEPARTMENT OF PUBLIC WORKS AND
INFRASTRUCTURE REGIONAL OFFICE
18 PRESIDENT BRAND
BLOEMFONTEIN
9301

WEBSITE: WWW.IDT.ORG.ZA

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PART T1: TENDERING PROCEDURE

Independent Development Trust

FREE STATE REGIONAL OFFICE
DEPARTMENT OF PUBLIC WORKS AND
INFRASTRUCTURE
18 PRESIDENT BRAND
BLOEMFONTEIN, 9301
Website: www.idt.org.za

T1.1 Tender Notice and Invitation to Tender

INDEPENDENT DEVELOPMENT TRUST **(HEREINAFTER "IDT")** INVITES **REQUEST FOR SUPPLY, INSTALLATION AND MAINTENANCE OF BACK-UP POWER GENERATOR AT FRANKFORT CORRECTIONAL CENTRE IN THE FREE STATE.**

The bid closes on **11th April 2024 at 12:00.** Bids must be submitted and deposited in the Tender Box at the IDT Free State Regional Offices, Department of Public Works and Infrastructure, 18 President Brand, Bloemfontein, 9301. **Tender validity period is 90 days**. NB: Telegraphic, telephonic, telex, facsimile, electronic and / or late tenders will not be accepted.

A three-stage process in evaluation of tender offers comprising of (a) Compliance with mandatory / gate keeper criteria, (b) Bids will be evaluated on Functionality, and entities must score a minimum of **70%** on functionality to qualify for further evaluation, (c) 80/20 Preference Point System in line with Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000), Regulations 2022 will be applicable.

Functionality Criteria

Criteria	**Sub-categories**	**Possible Maximum Score**
Company's Experience in managing similar electrical Projects		45
Client References		45
Registration and Experience of key personnel		10
TOTAL		**100**

Queries relating to the issue of these documents may be addressed to the IDT *fstendersd@idt.org.za*

Independent Development Trust

FREE STATE REGIONAL OFFICE
DEPARTMENT OF PUBLIC WORKS AND
INFRASTRUCTURE
18 PRESIDENT BRAND
BLOEMFONTEIN, 9301

Website: www.idt.org.za

T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annexure C of the CIDB Standard for Uniformity in Construction Procurement as per Board Notice No. 136 of 2015 published in Government Gazette No. 38960 of 10 July 2015 and as amended from time to time. (See www.cidb.org.za).

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

Clause number	**T1.2 Tender Data**
C1.1	The *Employer* is **Department of Correctional Centre** The employer *Representative* is: Name: **Mr. Riaan Botha** Acting Deputy Commissioner Facilities Department of Correctional Centre Poynton Building, 14th Floor room 1410. Cnr WF Nkomo & Sophie de Bryn Street Pretoria

C1.4	The Employer's Agent is: **Independent Development Trust** The IDT *Representative* is: Name: **Mr. Tsholofelo Thulare** IDT Free State Regional Office (Department of Public Works and Infrastructure Building) 18 President Brand Bloemfontein, 9301 e-mail: *fstenders@idt.org.za* Website: www.idt.org.za

C2.1	**1. COMPULSORY RETURNABLE DOCUMENTS / REQUIREMENTS ('GATE KEEPERS')** **NB: Eligibility**: Failure by any Tenderer to submit and comply with any of the following documents / requirements will automatically result in outright disqualification. 1.1 Fully Completed Form of Offer, fully signed and witnessed 1.2 Fully Completed BOQ 1.3 Valid **CIDB** grading **3 EB** (Electrical Building) or Higher certificate to be submitted or provide the CRS Number to enable verification in the CIDB website. The relevant CIDB grading, and category of works should be valid at the date of tender closing. 1.4 Registration as an electrical contractor for three phase installation. Bidder to submit a certificate from Department of Labor confirming this category of works. 1.5 A valid COIDA or FEM (letter of good standing registration certificate) 1.6 Fully completed and signed Standard Bidding Documents (SBD forms): 1.6.1 SBD 1: Invitation to Bid. 1.6.2 SBD 4: Bidder's disclosure 1.6.3 SBD 6.1: Preference points claim form in terms of the Preferential Procurement Regulations, 2022 1.6.4 Letter of authority to sign the bid if there is more than one director in the company. 1.6.5 CSD Registration number (Bidders to provide a valid MAAA No. for Verification on SBD 1) 1.7 Fully completed Section 4 (Schedules of Technical Information) 1.8 For unincorporated JV's / consortium: Compulsory / Gate keeping documents should be provided for each individual member of the JV or Consortium. **2. Mandatory Returnable Documents (At award stage)** 3. Valid Tax Clearance Certificate; Or Tax compliance letter with Unique Security Personal Identification Number (PIN) in terms of the Electronic Tax Compliance Status (TCS) System from SARS. 4. Provide Central Supplier Database (CSD) report and/or MAAA Number. 5. Certified ID Copies of Directors (certification not older three (3) months from bid closing date). 6. Detailed full CIPC certificate or other authentic proof of company ownership documents. **NB**: The IDT cannot enter a contract with a Service Provider whose tax status is non-compliant. Adjudication of tax compliance will be done in line with treasury instruction no.7 of 2017/2018
C2.7	**No site briefing session will be conducted.**
C2.8	Prospective bidders are encouraged to submit their requests for clarification before the closing date. However, the Employer shall respond to requests for clarification received up to **5 working** days prior to tender closure. All request for clarification must be emailed to fstenders@idt.org.za
C2.12	No alternative tender offers will be considered.

C2.13.1	Submit one tender offer only, either as a single tendering entity or as a member of a Joint Venture to provide the whole works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.
C2.13.2	The tender shall be submitted as an original copy, duly completed together with all returnable schedules, and signed accordingly. Returnable documents must be filed in a separate bundle and referenced accordingly with table of contents.
C2.13.5	Only one original set of the tender document must be submitted.
C2.13.6	Two-envelope system: NOT APPLICABLE
C2.15	The closing time for submission of the tender offers is as per Notice and Invitation to Tender T1.1.
C2.16	The tender offer validity period is as per Notice and Invitation to Tender T1.1.
C2.20	Bidders must choose a security insurance of their choice as guided in the Contract. (NB: adequacy or inadequacy of such an insurance will only be re-looked prior to appointment of a successful service provider and upon conclusion of specific risk assessment)
C3.4	Tenders shall not be opened in public after the closing time and offers will not be publicly announced.
	a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a **3 E*B or Higher*** class of construction work.

C3.5	• Suppliers must complete the columns on the right-hand side of the pricing schedule, in consideration of what they are offering. No separate quotation will be accepted apart from this template. • Bid rigging and collusive bidding are heavily discouraged and suppliers found guilty of colluding amongst each other or with SCM officials will face automatic disqualification from the bid and may further face restriction from doing business in the public sector. • Re-usable material remains the property of the Department and must not be removed from the construction site. The contractor is required to clean and remove rubble from the construction site on completion of the project. • Independent Development Trust does not bind itself to accept the lowest or any other bid in whole or in part and price alone is not the determining factor. If you do not get a response within 90 days, please consider your bid as unsuccessful. • The successful bidder will be expected to sign a contract (General Conditions of Contract for Construction works, 3rd Edition 2015) and on the contract, the completion date of the project must be stipulated and adhered to by the bidder. The project and the performance of the bidder will be monitored.

C3.11 **Evaluation of Tender Offers**

A three-stage process in evaluation of tender offers comprising of (a) Compliance with mandatory / gate keeper criteria, (b) Bids will be evaluated on Functionality, and entities must score a minimum of 70**%** on functionality to qualify for further evaluation, (c) 80/20 Preference Point System in line with Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000), Regulations 2022 will be applicable.

(a) Functionality Criteria

Criteria	**Sub-categories**	**Possible Maximum Score**
Company's Experience in managing similar electrical Projects		45
Client References		45
Registration and Experience of key personnel		10
TOTAL		**100**

B1.1 Company's experience in managing similar electrical works (45 points):

Points are allocated for the bidding entity's experience in managing similar[2] type projects **completed** (not currently running) in the past 15 years. The experience refers to similar projects managed and completed by the entity on new works and or major electrical installation.

To score points for the above, bidders are required to submit the following:

1. Letters of appointments for projects listed under the "B1.1 Evaluation Schedule: Company Experience" returnable schedule.
2. Confirmation of completion of works (Practical Completion Certificate) for projects listed under the "B1.1 Evaluation Schedule: Company Experience" returnable schedule.

*[2]The experience refers to **similar** projects managed by the entity or new works and or major electrical installation.*

NB: Non-submission of the above-mentioned documents confirming bidder's experience will result in the bidder not scoring any point for such project.

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

Company experience in managing similar type projects (45 points)

Project	**Projects greater than R0 – R500 thousand**	**Projects greater than R500 thousand – R1.0 million**	**Projects Greater than R 1.0 m - Unlimited**
Project 1	5	10	15
Project 2	5	10	15
Project 3	5	10	15
Sub-total number of points	**15**	**30**	**45**

B1.2 Client References on company's experience in managing similar[2] type projects (45 points):

Points are allocated for performance of the bidders on previous projects completed (not currently running). Client Reference Scorecards shall be submitted for scoring (see returnable schedules) based on the projects listed on the B1.1 Evaluation Schedule: Company Experience. Client Reference Scorecards will be completed by each of the respective Clients for the projects listed in the "Company Experience" returnable schedule. Incomplete, Unsigned and Un-stamped forms by the client will score zero points

Points will be awarded in terms of the following table:

Evaluation criteria: Client's Reference (45 points)				
Projects	**Overall assessment by Client**			
	Poor	**Fair**	**Good**	**Excellent**
Project 1	0	5	10	15
Project 2	0	5	10	15
Project 3	0	5	10	15
Total number of points	**0**	**15**	**30**	**45**

Evaluation sub-criteria: Points allocation Project 1-3: (15 points)				
	Overall assessment per Project			
Performance indicator	**Poor**	**Fair**	**Good**	**Excellent**
Indicator 1	0	1.25	2.5	3.75
Indicator 2	0	1.25	2.5	3.75
Indicator 3	0	1.25	2.5	3.75
Indicator 4	0	1.25	2.5	3.75
Total points	**0**	**5**	**10**	**15**

*[2]The experience refers to **similar** projects managed by the entity or new works and or major electrical installation.*

B1.3 Registration and Experience of key personnel (10 points):

Points are allocated for providing a three phase installation certificate including a CV for key personnel currently employed by the bidder for consideration.

Registration Certificate of the Proposed Resource

Evaluation criteria: Registration as an electrical contractor for three phase installation (10 points)		
Name of Staff Member	**Electrical Registration**	
	None	**Registration Certificate**
Three phase installation certificate	0	10
Subtotal number of points	**0**	**10**

(b) Price/Financial (Max 80 points)

1. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. **POINTS AWARDED FOR PRICE**

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

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

80/20 or 90/10

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

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

3.1.1 POINTS AWARDED FOR PRICE

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

80/20 or 90/10

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system: or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

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

Table 1: Specific goals for the tender and points claimed are indicated per the table below.
(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.
***Note to tenderers: The tenderer must indicate how they claim points for each preference point system.*)**

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

Source Documents to be submitted with the Bid or RFQ:

*CIPC Document (Company Registration Document will be required for verification (CIPC DOC))
*Woman (Originally Certified ID Document)
*Youth (Originally Certified ID Document)
*People with Disability (Letter from the Dr. Confirming the Disability)
*Black (Originally Certified ID Document)

PART T2: RETURNABLE DOCUMENTS

T2.1 - List of Returnable Documents

Failure to submit any of the returnable documents required for evaluation, will result in zero points being awarded accordingly. Failure to submit any of the mandatory documents will result in outright disqualification.	
T2.1 List of Returnable Documents	
I. CSD Registration number (Bidders to provide a valid MAAA No. for Verification on SBD 1)	Mandatory
II. Tax compliance letter with Unique PIN in terms of TCS	Mandatory at award
III. Fully completed bid document and valid, signed Form of Offer	Mandatory
IV. Valid CIDB grading 3 EB (electrical building) or Higher certificate to be submitted or provide the CRS Number to enable verification in the CIDB website. The relevant CIDB grading, and category of works should be valid at the date of tender closing	Mandatory
V. Registration as an electrical contractor for three phase installation. Bidder to submit a certificate from Department of Labor confirming this category of works	Mandatory
VI. Letter of Good Standing (COIDA/FEM) in terms of Compensation for Occupational Injuries and Diseases Act of 1993[1]	Mandatory
I. Fully completed Section 4 (Schedules of Technical Information)	Mandatory
II. In case of a joint venture, a signed joint venture agreement must be included.	Mandatory (only in case of JVs)
III. Specific Goals as per T1.1	Evaluation
T2.2 Returnable Schedules	
I. SBD 1: Invitation to Bid	Mandatory
II. SBD 4: Bidder's Disclosure	Mandatory
III. SBD 6.1: Preference points claim form in terms of PPPFA, Procurement Regulations 2022	Mandatory
IV. Record of addenda to tender documents if applicable	
V. Company's Experience in managing similar electrical installation works	Evaluation
VI. Client References on similar projects	Evaluation
VII. Detailed full CIPC certificate or other authentic proof of company ownership documents.	Mandatory at award
VIII. Registration and Experience of key personnel	Evaluation
IX. Letter of authority to sign the bid for companies with more than one director.	Mandatory

T2.2 Returnable Schedules

SBD 1

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (*NAME OF DEPARTMENT/ PUBLIC ENTITY*)					
BID NUMBER:	**PMSUFS/01/19/DCS**	CLOSING DATE:	**11 APRIL 2024**	CLOSING TIME:	**12:00**
DESCRIPTION	**REQUEST FOR SUPPLY, INSTALLATION AND MAINTENANCE OF BACK-UP POWER GENERATOR AT FRANKFORT CORRECTIONAL CENTRE IN THE FREE STATE**				

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT *(STREET ADDRESS)*
Independent Development Trust
18 President Brand Street
Bloemfontein, 9301

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO		**TECHNICAL ENQUIRIES MAY BE DIRECTED TO:**	
CONTACT PERSON	**Ms. Yonela Bobani**	CONTACT PERSON	**Mr. Obakeng Marwane**
TELEPHONE NUMBER	**012 845 2000**	TELEPHONE NUMBER	**051 430 1381**
FACSIMILE NUMBER		FACSIMILE NUMBER	
E-MAIL ADDRESS	**fstenders@idt.org.za**	E-MAIL ADDRESS	**fstenders@idt.org.za**

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		**OR**	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] ☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT		[TICK APPLICABLE BOX] ☐ Yes ☐ No

[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]			
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	***ARE YOU A FOREIGN BASED SUPPLIER FOR** THE GOODS /SERVICES /WORKS OFFERED?*	☐Yes ☐No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS	
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ NO

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

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED– (NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. **THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).**
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

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

SIGNATURE OF BIDDER: ……

CAPACITY UNDER WHICH THIS BID IS SIGNED: ……
(Proof of authority must be submitted e.g., company resolution)

DATE: ……...

SBD 4

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 interest1 in the enterprise,
employed by the state? **YES/NO**

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

Full Name	Identity Number	Name of State institution

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

[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.**

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 combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

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

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

…… ..……..
Signature Date

…… ……
Position Name of bidder

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

SBD 6.1

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

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

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

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2. GENERAL CONDITIONS

2.1 The following preference point systems are applicable to invitations to tender:

- 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).

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

(*Delete whichever is not applicable for this tender*).

a) The applicable preference point system for this tender is the 80/20 preference point system.

b) Either the 90/10 or 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

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

(a) Price; and

(b) Specific Goals.

2.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	**80**
SPECIFIC GOALS	**20**
Total points for Price and SPECIFIC GOALS	**100**

2.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

2.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or

at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

3. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

4. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

4.3. POINTS AWARDED FOR PRICE

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

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

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

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

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

4.4.1. POINTS AWARDED FOR PRICE

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

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

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

5. POINTS AWARDED FOR SPECIFIC GOALS

5.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

5.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(c) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system: or

(d) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

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

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

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

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

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

DECLARATION WITH REGARD TO COMPANY/FIRM

5.3. Name of company/firm……

5.4. Company registration number: ……..

5.5. TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

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

i) The information furnished is true and correct.

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct.

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process.

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct.

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation.

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

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

Record of Addenda to Tender to Tender Documents

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

	Date Received	**Title or Details**
1.		
2.		
3.		
4.		

(Attach additional pages if more space is required)

Signed ..... Date .....

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

tenderer .....

B1.1 EVALUATION SCHEDULE: COMPANY EXPERIENCE

Points are allocated for the bidding entity's experience in managing similar[2] type projects in the past 15 years. Please list maximum of three (3) projects to score for evaluation purposes.

***NB**: Only three projects listed below will be evaluated. Bidders must submit only three projects for this purpose. Bidders supplying more than the required number of projects, the evaluation will only deal with the first three project on the list.*
Only completed projects with either completion certificates and or Client confirmation of project completion will be considered. Currently running projects will not be considered.

PROJECT NAME	BRIEF PROJECT DESCRIPTION	PROJECT VALUE (Incl. VAT)	CONTRACT PERIOD	START DATE	ACTUAL COMPLETION DATE
1.					
2.					
3.					

[2]*The experience refers to **similar** projects managed by the entity or new works and or major electrical installation which have the complexity and value in accordance with the estimated construction cost of this project.*

B1.2 EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the "Evaluation Schedule: Company Experience" returnable schedule. "Client Reference Scorecards" will be completed by each of the respective Clients for the projects listed in the "Company Experience" returnable schedule. Incomplete, Unsigned and Un-stamped forms by the client will score zero points.

The following are to be **completed by the Client**

PROJECT 1:

Name of Project:.....

Name of Firm/Bidder:…….

Client/Client Department: .....

Contract Amount:.....

Contract Duration: .....

Actual Contract Duration: ……

Description / Performance	Poor (0)	Fair (5)	Good (10)	Excellent (15)
Cost management				
Performance and Technical experience of resources				
Timeous co-operation during the contract				
Quality of service				

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

Name of Client Representative: .....

Designation: ……

Telephone: ……

..

Client Signature: ..... **Date**: ……

Stamp

EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the "Evaluation Schedule: Company Experience" returnable schedule. "Client Reference Scorecards" will be completed by each of the respective Clients for the projects listed in the "Company Experience" returnable schedule. Incomplete, Unsigned and Un-stamped forms by the client will score zero points.

The following are to be **completed by the Client**

PROJECT 2:

Name of Project:.....

Name of Firm/Bidder:.....

Client/Client Department: .....

Contract Amount:.....

Contract Duration: .....

Actual Contract Duration: ……..

Description / Performance	Poor (0)	Fair (5)	Good (10)	Excellent (15)
Cost management				
Performance and Technical experience of resources				
Timeous co-operation during the contract				
Quality of service				

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

Name of Client Representative: .....

Designation: ……

Telephone: ……

..

Client Signature: ..... **Date**: ……

Stamp

EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the "Evaluation Schedule: Company Experience" returnable schedule. "Client Reference Scorecards" will be completed by each of the respective Clients for the projects listed in the "Company Experience" returnable schedule. Incomplete, Unsigned and Un-stamped forms by the client will score zero points.

The following are to be **completed by the Client**

PROJECT 3:

Name of Project:.....

Name of Firm/Bidder:.....

Client/Client Department: .....

Contract Amount:.....

Contract Duration: .....

Actual Contract Duration: …….

Description / Performance	Poor (0)	Fair (5)	Good (10)	Excellent (15)
Cost management				
Performance and Technical experience of resources				
Timeous co-operation during the contract				
Quality of service				

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

Name of Client Representative: .....

Designation: ……

Telephone: ……

..

Client Signature: **.....** Date**: ……**

Stamp

CONTRACT

PART C1: AGREEMENT & CONTRACT DATA

C1.1 Agreement and Contract Data
General Conditions of Contract for Construction Works, 3rd Edition 2015

C1.2 Form of Offer & Acceptance

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

Contractor for the Supply and Installation of Back- Up Power Generator at Frankfort Correctional Centres in the Free State.

The tenderer, identified in the Offer signature block, has.

either	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 authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all 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.

Total Amount including VAT (15%)	
Total Amount in words	

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 including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the Contractor in the conditions of contract identified in the Contract Data.

Signature(s)

Name(s)

Capacity

For the tenderer:

(Insert name and address of organisation)

Name & signature of witness

Date

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 Acceptance)	Agreements and Contract Data, (which includes this Form of Offer and
Part C2	Pricing Data
Part C3	Scope of Work: The Scope

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 listed in the Returnable 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 Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of 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 at, or just after, the date this agreement comes into effect. 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).

Signature(s)		
Name(s)		
Capacity		
for the Employer	Independent Development Trust Department of Public Works and Infrastructure, 18 President Brand, Bloemfontein, 9301 Website: www.idt.org.za	
Name & signature of witness	(Insert name and address of organisation)	Date

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

Schedule of Deviations

Note:

1. To be completed by the Employer prior to award of contract. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here, and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1		
2		

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto 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 Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

	For the tenderer:	For the Employer:
Signature		
Name		
Capacity		Independent Development Trust 18 President Brand, Bloemfontein, 9301 Website: www.idt.org.za
On behalf of	(Insert name and address of organisation)	(Insert name and address of organisation)
Name & signature of witness		
Date		

PART C 2: PRICING DATA

SUMMARY OF BILL OF QUANTITY

Bill No.:	Description	Total R NIL
Bill 01	PREAMBLES TO BILL OF QUANTITIES	
Bill 02	PRELIMINARY AND GENERAL COSTS	
Bill 03	EMMERGENCY BACK UP POWER INSTALLATION WORKS	
Bill 04	MINOR ELECTRICAL WORKS	
Bill 05	MINOR CIVIL WORKS	
	TOTAL AMOUNT(Excl.VAT)	
	15% VAT	
	TOTAL AMOUNT CARRIED TO FORM OF OFFER (Incl.VAT) in C1.2 page 28	

ELECTRICAL CONTRACTOR COMPANY REGISTERED NAME: _____.

ELECTRICAL CONTRACTOR COMPANY CIPC REGISTRATION NUMBER: _____.

ELECTRICAL CONTRACTOR DEPARTMENT OF LABOUR COMPANY REGISTRATION NUMBER: _____.

COMPANY'S CIDB NUMBER AND CIDB GRADING(S): _____.

(Failure to complete the above shall lead to rendering your tender submission none-responsive)

NB: Bid Price will be evaluated on the basis of total amount offered carried over to form of offer.

Signature(s) ....

Name(s) ....

Capacity ....

For the tenderer: .....

Name & signature of witness ..... *(Insert name and address of organisation)*

Date .....

BILL O1: PREAMBLE TO BILLS OF QUANTITIES

1.1 The pages of each bill are numbered consecutively as indicated in the contents. Before the Tenderer submits his tender, he should check the number of the pages and if any are found missing or duplicated, or the figures or writing indistinct, or should the Bills of Quantities contain any obvious errors, he should apply to the Engineer at once and have same rectified, as no liability whatsoever will be admitted by the Engineer or the Employer in respect of errors in tender due to the foregoing.

1.2 The Bills of Quantities form part of and shall be read in conjunction with the Specification which contains the full description of the work to be done and material and equipment to be used and unless otherwise described in the Bills of Quantities, reference should be made to the Specification for the full meaning of descriptions of work to be done and materials and equipment to be used in this service.

1.3 **All items in the Bills of Quantities shall be priced and submitted at the same time of tendering. Any item left unpriced shall be assumed to be covered elsewhere in the Bills of Quantities.**

1.4 The total tender price in the tender form shall constitute the contract price of the successful Tenderer. Tenderers are advised to check their item extensions and total additions, in the Bills of Quantities as no claim for arithmetical errors will be considered.

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

1.6 The priced Bill of Quantities of the successful Tenderer will be checked and the Engineer/Employer reserves the right to call for adjustments to any individual price and to rectify any discrepancy whilst the total tender price, as submitted, remains unaltered.

1.7 The responsibility for the accuracy of the quantities written into the Bills remains with the Engineer and the Employer. The Tenderer shall be relieved of responsibility of measuring quantities at the tender stage, and the tender sum submitted shall be in respect of the quantities set out in the Bill, although he will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the Bill and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the specification.

1.8 The Bill of Quantity cannot be used for ordering material after appoint. Any Equipment or material ordered without prior approval from the relevant consulting engineer regarding type of equipment, material and quantities thereof, shall be to contractor's account no claims will be entertained without copy of approved equipment and quantity. It is the successful tenderer's responsibility to ensure that the relevant consulting engineer has a detail copy of equipment that need to be procured for approval timeously to ensure that all lead items and required material is available in time on-site to meet all relevant milestones. This clause does not relieve the successful tender's project manager to coordinate all procurements and works to meet all milestones as stipulated in conditions of contract.

1.9 Any equipment not priced by the tender in order to deliver a fully operational system shall be for tenderer responsibility.

1.10 Variations in the scope and extent of the work included in the bill shall be allowed to meet the requirements and shall be measured and costed at rates entered in the bill, where appropriate, and shall form an addition to or deduction from the total of the Bill. Any items or variation for

which rates have not been included in the Bill shall be agreed and priced as non-scheduled items.
Variations to be planning before the work has been executed shall be priced as above. Alterations to work already executed cannot necessarily be priced as above and must be reviewed on its merits.

1.11 A separate rate for the supply and for the installation of each item is specifically called for the rates quoted for supply and installation of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates, plant, temporary works, return of packages, establishment charges sundry services, profit and all other obligations arising out of the conditions of contract.

1.12 Where mentioned in the Bill that a wire/cable length is based on a single length measurement, it means that the length given shall be multiplied by the total amount of wiring cores required.

1.13 Where mentioned in the Bill that a wire/cable is based on a 3-wire system, the total length of wiring required is as stated in the Bills.

1.14 300mm Additional length per conductor has been measured for conductors drawn into conduit, per termination point. Tenderers shall allow in their rate for any conductor lengths required for his own purposes, in addition to the 300mm measured.

1.15 All measurements are net, unless otherwise stated, and Tenderers shall allow in the rate for wastage.

1.16 The Tenderers shall allow for scaffolding, ladders, tackle, tools, slings, etc. which may be required in the execution of this subcontract.

1.17 Where it is desired to offer alternative prices for equipment, materials, etc. of different manufacture, the price for the equipment to specification must be quoted against the relevant item in the Bill of Quantities. The alternative prices must be furnished separately and shall comply with the specification 100%.

1.18 Where any item in the Bills of Quantities is listed as a provisional quantity, such items shall be adjusted and agreed to during the course of the sub-contract. No work for which “Provisional” items are provided shall be commenced without written instructions from the Engineer.

1.19 The Tenderer shall notify the Engineer in writing during the tender period of any discrepancies, between the Bills of Quantities & Specification. Failure to comply with this condition will invalidate any claim arising out of discrepancies in the quantities between the Bill of Quantities and Specifications and actual quantities allocated to the project.

1.20 Tenderers shall note that the total for each page of the bill of quantities shall be carried forward to the summary sheet of the complete bill of quantities.

1.21 It is a requirement of this tender document that all tenderers shall complete the bill of Quantities in full and submit the completed bill of quantities at tender submission stage. Non-compliance to the above statement shall lead to disqualification.

1.22.1 The conditions of contract and the application of the Contract Price Adjustment Provisions shall be as set out in contract data. No price escalation will be taken into consideration due to contract period been less than 12 months.

1.22.2 The descriptions in this Price Schedule shall be read in conjunction with the specification. The unit rate for each item in the Price Schedules 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.

1.22.3 The BOQs shall not be used for ordering purposes. The Contractor shall check the lengths of cables and overhead conductors on site before ordering any of the cables. Any allowance for off-cuts shall be made in the unit rates.

1.22.4 The rates shall exclude Value Added Tax and the total carried over to the final summary of BOQ page per bill.

1.22.5 All material covered by this Specification shall, wherever possible be of manufactured and supplied from Republic of South Africa as much as possible. The genset shall be fully assembled within RSA with full provincial and regional technical local support by the manufacturer and installer including all parts where possible.

1.23 The prices are deemed to include (unless otherwise specifically stated) but shall not be limited to the following:-

a. Materials and consumables, including waste, necessary for the completion of the work.

b. Receiving, checking and inspecting for defects before incorporation into the works. Storing and protecting against deterioration, contamination, loss or damage, including the provision for any protecting against deterioration, contamination, loss or damage, including the provision for any necessary pallets, racks, waterproof sheeting, etc. Transportation from the point of delivery, placing in position, fixing, assembly of components, adjustment, lubrication and the like, all in accordance with the works standards. Protecting all services

c. Provision and use of contractor's and/or supplied equipment. Overhead charges and profit. Overtime working necessary to complete the works in accordance with the completion date. Payments to labour in respect of time worked and all other payments and costs relating to labour of any denomination. Stoppage for inspection purposes by the Engineer or other authorised company personnel. Testing and completion in accordance with the specification.

BILL 02: PRELIMINARIES AND GENERAL ITEMS

Item	Description	Unit	QTY	Rate	Total
2.1	Supply, installation of complete project board as per IDT, DCS specification.	no	1		
2.2	Setting out of Works & allowance for works Insurance in accordance to specification.	sum	1		
2.3	Safe and secured on-site electrical material storage facility, temporary Ablution facility and Site Office facility for complete duration of project and housekeeping thereof, as specified.	month	2		
2.4	Submission of Genset comprehensive Pre-manufacturing workshop drawings for client engineer representative approval, as specified.	set	1		
2.5	Submission of Engineering as-build drawings as specified.	set	1		
2.6	Submission of monthly comprehensive contractor progress report with photos and updated work programme in relation to baseline to client engineer representatives and client.	month	2		
2.7	Submission of comprehensive MS Project Works Programme in line with contractual project duration with clear critical path, as specified for client baseline approval and monthly updates submission to client & engineer representatives.	no	2		
2.8	Labelling, Comprehensive testing and commissioning of complete emergency back- up system as specified.	sum	1		
2.9	Submission of comprehensive Electrical Installation test result(i.e CoC) for new Genset , as specified.	no	1		
2.10	Submission of comprehensive electrical repairs and modification test results (i.e CoC) for all electrical distribution boards, as specified.	sum	1		
2.11	Implementation of Quality Management System(ISO 90001), as specified.	sum	1		
2.12	Submission of Comprehensive SHEQ File in accordance with OHS Act, LRA, IDT SHEQ specification for client pre-site handover approval, as specified.	set	1		
2.13	Allowance for competent SHEQ representative for duration of installation and submission of monthly OHS reports to client OHS & Engineer representative, as specified.	Month	2		
2.14	Liaison with local municipality electrical department for genset connection of new genset supply cabling, as specified	sum	1		
TOTAL AMOUNT FOR BILL 02 CARRIED FORWARD TO SUMMARY PAGE(Excl.VAT)					

BILL 03: EMMERGENCY BACK UP POWER INSTALLATION

Item	Description	Unit	QTY	Supply Rate	Installation Rate	Total
3	**EMMERGENCY STANDBY GENERATOR**					
3.1	Supply, delivery to site, installation, commissioning of complete new close type weather & acoustic proof canopy diesel powered standby generator set emergency diesel powered 150KVA at 0.8PF 1500RPM generator set with Automatic Change Mains Panel with remote monitoring capability, residential compliant silencer with base fuel tank, as specified.	No	1			
3.2	Supply and installation of compete electric fuel filling tank and water jacket heater, as specified.	No	1			
3.3	Supply and delivery of 100% full diesel tank at practical completion, as specified.	ltr	200			
3.4	Decommissioning existing open type genset, change over and associated electrical cables and hand over to end-user client storage facilities, as specified.	sum	1			
3.5	Complete weatherproof ear protection devices in a vandal proof wall mount enclosure, as specified.	No	1			
3.6	Comprehensive end-user Genset operation & maintenance training by competent generator instructor prior to practical completion, as specified.	Sum	1			
3.7	Submission of comprehensive professionally binded and customised Maintenance, Operational and Technical Manuals, as specified.	Set	3			
3.8	Supply and installation of warning signage on the Genset as per SANS and SHEQ specifications.	Set	1			
3.9	Comprehensive commissioning and testing to delivery fully operational Genset to client and client representative engineers satisfaction, as specified.					
3.10	Post defeat and liability period complete comprehensive preventative maintenance services based on manufacturer's run hours of the Genset and issuing comprehensive technical service reports to client representative, as specified.	Quarterly	4			
3.11	Post defeat and liability period Complete comprehensive preventative maintenance of the UPS and issuing service reports to client representatives, as specified.	Quarterly	4			
3.12	Supply, installation and commissioning of complete new rackmount 6KVA 1:1 True online double conversion Uninterruptable Power Supply(ie UPS) complete with 30min backup batteries pack with monitoring software and network card, as specified	No	1			
	TOTAL FOR BILL 03 CARRIED FORWARD TO SUMMARY PAGE(EXCL.VAT)					

BILL 04: MINOR ELECTRICAL INSTALLATION WORKS

Item	Description	Unit	QTY	Supply Rate	Installation Rate	Total
4.1	**ELECTRICAL FEEDER CABLING:** Supply, installation, ,termination including connection of conductors, cable lugs, captive glands shrouds, cable management labelling, and handing fully compliant and operational 600/10000V multi-core PC insulated, armoured feeder cables in accordance with SANS regulations, municipality electrical bi laws, NDPW electrical building services guidelines for correctional facilities and electrical engineer's specification for the following LV cable sizes:					
4.1.1	Complete 70mm² 4Core PVC/SWA/PVC electrical cable underground in electrical sleeves (between Genset output and Main DB-A/AE) , as specified.	m	50			
4.1.2	Complete 95mm² 4Core PVC/SWA/PVC electrical cable underground (between Point of Supply and Genset input) , as specified.	m	30			
4.1.3	Complete 35mm² electrical Bare Copper Earth Wire, as specified	m	80			
4.2	Complete 110mm² UPVC heavy duty underground electrical sleeves, as specified.	m	100			
4.3	Complete electrical 152mm width heavy duty hot dipped galvanised cable tray with cover as wall mounted cable riser to link with Main DB from sleeves to ceiling void, as specified.	m	15			
4.4	Supply and installation of complete 200A 3phase Circuit breaker with thermal magnetic trip unit and earth leakage protection with accessories at DB A/AE, as specified.	No	1			
4.5	Alteration, re-label and testing of existing main DB with new Genset to ensure that the complete board is on essential power, modification and repaying of cover panels, replace damaged DB locks to comply with SANS10141-1:2021 , as specified.	No	1			
4.6	Alteration and refurbishment of all electrical sub DBs to ensure that the complete board is on essential power, modification and respraying of cover panels, replace damaged DB locking mechanisms to comply with SANS10142-1:2021, as specified.	No	8			
4.7	Any other required item to comply and hand over fully compliant electrical installation (if any). Please specify:-					
4.7.1						
4.7.2						
TOTAL FOR BILL 04 CARRIED FORWARD TO SUMMARY OF BILLS(EXCL.VAT)						

BILL 05: MINOR CIVIL WORKS

Item	Description	Unit	QTY	Rate	Total
5.1	Clearing of vegetation and Construction of complete reinforced and earthed 30MPa concrete plinth with recessed UPVC sleeves at Changer Panel position including side apron to client engineer representative satisfaction and inline with new genset dimension as specified.	sum	1		
5.2	Complete excavation and backfilling (with soft soil material) of electrical trenches for electrical cabling with danger taping , securing cables for anti-tempering in accordance with SANS0142-1:2021 as amended From Point of Supply to New Genset AMF Panel position as specified.	M^3	20		
5.3	Complete excavation and backfilling(with soft soil material) of electrical trenches for electrical cabling with danger taping , securing cables for anti-tempering in accordance with SANS0142-1:2021 as amended From Genset to Main Distribution board Riser position, as specified.	M^3	30		
5.4	Submission of concrete strength test cube results for client representative approval prior to mounting new Genset on concrete plinth,as specified.	Set	1		
TOTAL FOR BILL 05 CARRIED FORWARD TO SUMMARY OF BILLS(EXCL.VAT)					

PART C 3: SCOPE OF WORKS & SPECIFICATION

PART C3.1 **Project and general Specification**

PART C3.2 **Technical Specification**

PART C3.3 **SHEQ Specification**

PART C3.1: PROJECT AND GENERAL SPECIFICATION

SCOPE OF WORK

This project specification describes the biding conditions for the submission of bids for the supply, delivering to site, installation, commissioning, labelling, full testing and certification of the installation in accordance with electrical SANS 10142-1: 2021 guidelines and requirements including the client's requirements, electrical consulting engineer's specification for the following but not limited to:-

1. Removal of existing standby Generator and associated change over.

1.1 Complete decommissioning of existing 35KVA open type diesel powered generator in generator room, make safe and move it end-user client maintenance storage facility.

1.2 Complete decommissioning of existing manual genset change over panel, making safe and hand it over to end-user client maintenance storage facility.

1.3 Complete and safely remove the existing genset input and output electrical cable between generator room and main electrical distribution board.

1.4 Complete and safely remove the existing electric fuel pump, make safe and hand it over to end user client maintenance.

2. New complete standby generator and associated change over.

2.1 Complete manufacturing, supply, pre-site delivery testing, delivery to site, professional off loading, installation, commissioning and hand over fully operational compliant 150KVA @ 0.8PF at full load close type sound proof (residential area compliant) diesel powered and hand over fully operational Genset with full tank to client satisfactions, as specified.

2.2 Complete supply, installation of automatic changeover panel for 150KVA genset integrated and interfaced with generator, point of supply and point of consumption with recessed vandal proof locking mechanism suitable for correctional facility environment and hand over fully operational AMF to client.

2.3 Complete 12 months comprehensive maintenance service quarterly or as per manufactures runtime period which ever come first. Service report to be issued to client upon completion periodically.

3. Minor civil works

3.1 Construction of new 30MPA reinforced and earthed standby generator concrete plinth adjust to the correctional facility vehicle entrance gate, as specified.

4. Uninterruptable power supply (UPS) unit.

4.1 Complete supply, delivery to site, installation, commissioning and testing of 3U true online double conversion 6KVA 1:1 UPS with power factor correction, with 30minutes battery pack, intelligent power software and hand over operational UPS to client, as specified.

4.2 Complete 12 months comprehensive maintenance service quarterly. Service report to be issued to client upon completion periodically.

5. Minor electrical works.

5.1 Electrical cabling trench works between new genset position and point of supply, as specified.

5.2 Electrical cable trenching works between new AMF panel position and main distribution board position, as specified.

5.3 Supply and installation of new electrical cabling from new genset to municipal supply point of consumption in trenching inline, as specified.

5.4 Supply and installation of new electrical cabling from new genset to existing main distribution board in trenching and cable trunking against the wall inline as specified.

5.5 Alteration, service relabelling, testing of existing main distribution board to accommodate the new 150KVA genset for distribution board load and hand over fully compliant DB in terms of SANS10142-1:2021 as amended as specified.

5.6 Alterations, repairs, relabelling, testing, replacing of locking mechanism of existing main kitchen distribution board to ensure that all electrical load is on standby power for DB full load and hand over fully compliant sub-DB, as specified.

5.7 Minor alteration, relabelling and testing of all existing sub-DB to ensure that all electrical load is on standby power for DB full load and hand over fully compliant sub-DB, as specified.

6. Preventative maintenance of new genset and UPS for period of 2 years.

PROPOSED PROJECT DURATION.

Due to the urgency of this project based on the ongoing ESKOM national load shedding the correctional facility require the new Genset be installed with the urgency needed and all bidders are required to adhere ensure that they check take the following into consideration:-

i. Confirmed procurement of new genset within 1 week after site establishment.
ii. Delivery of project board within 2 weeks after site establishment.
iii. Construction of reinforced concrete plinth onsite within 2 weeks after site establishment.
iv. Repair, tracing, testing and labelling of all existing electrical sub-distribution boards within 2 weeks after site establishment.
v. Procurement and installation of new equipment rack mount UPS within 2 weeks after site establishment.
vi. Delivery of new genset to site within 6 working weeks of site establishment.

Project duration shall be completed hand over to client successfully by end of February 2024 latest.

DOCUMENT AND SITE INSPECTION BY BIDDERS

The bidders are required to inspect and shall be deemed to have inspected the site, regardless of whether attendance of an official site meeting is required by this document or not, and in this regard the bidder's attention is drawn to the notes to bidders and all documents and drawings forming the bid document. Bidders are also required to satisfy themselves that the documents received are correct, complete and sufficient to be the basis of a bona fide bid.

Should a bidder not accept that documents issued could form the basis of a bona fide bid, the Engineer shall be requested to correct the discrepancy, ambiguity, and missing or illegible information.

BID DOCUMENTATION

Upon receiving a set of documents, bidders shall ensure that, all the pages as indexed are included and that all the drawings, as listed, are attached. Should this not be the case, it should immediately be brought to the attention of the Engineer, as no claims to this effect shall be accepted after the awarding of bids.

Any assumption made by the bidder without prior approval by the engineer will not be acceptable and can lead to disqualification of bid.

Upon or before receiving final payment, the contractor shall return to the engineer all drawings and documents. None of the documents herein-before mentioned shall be used by any of the parties hereto for any other purpose than the execution of this contract and neither of the parties shall divulge or use, except for the purpose of this contract, any information contained in these documents.

Bidders shall study the drawings included in this document to ensure that the equipment offered can be accommodated in the space allowed. If any conflict exists, this fact must be explicitly noted as a formal qualification by means of a covering letter.

Copies of shop drawings shall be submitted to the engineer for approval and to demonstrate compliance with contract documents before manufacture or purchase thereof. Shop drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data, which are prepared by the bidder, manufacturer, supplier or distributor. The supply of such documentation with a bid shall be to the bidders advantage.

The Engineer's approval of shop drawings or samples is limited to the checking of conformity with design requirements and shall not relieve the bidder of responsibility for erection or installation, fit, or for any deviation from the requirements of this Contract unless the Bidder has informed the engineer in writing of such deviation at the time of submission of shop drawings or samples and the engineer has given written approval for the specific deviation.

The engineer's approval shall not relieve the bidder of responsibility for errors or omissions in the shop drawings or samples.

Bidders are to bid according to the attached specification, drawings and official addendums only.

IMPORTANCE OF DOCUMENTATION

This contract shall be deemed as physically incomplete until all as built/ “as installed” drawings, manuals and documentation have been completed and handed over to the satisfaction of the engineer.

PRODUCT OFFERED

The bidder shall submit a detailed list with his bid of technical specifications of the equipment quoted including brand names and part numbers proposed. Bidders may submit alternative offers for equipment considered by them to be equal to or superior to that called for in the specification, which shall conform to all standards, specification and regulation stipulated in this bid document (the above offers will be considered at the discretion of the Engineer). Submission of an incomplete bill of quantities will not be tolerated and shall lead to disqualification of the submitted bid.

VALUE ADDED TAX

15% VAT shall only be included in the Form of Bid in the position on the form as indicated. Amounts not included in the bid form and incomplete bid form may cause disqualification of the bid document. Should the bidder not be a VAT registered company this shall be clearly indicated in the bid document and supporting documentation be attached, it should be noted that the manufacturer maybe VAT registered and the bid price must be all inclusive.

EXECUTION OF WORKS

The successful contractors shall be responsible for the transportation to site of the relevant electrical equipment and components required for the specific sub-system for which they have bided.
Contractors shall be held responsible for any damage to the building, whether due to negligence or with malicious intent.
The contractor shall be fully responsible for the following:

1. Execution of the works according to all documents and drawings forming the bid Document.
2. Provision of logistics and infrastructure required for completing the works.
3. Full time supervision over the execution of the Works.
4. Compliance to the relevant Codes, Standards and Regulations.
5. Provision for registered and qualified skill and labour as required by the appropriate Acts and Regulations.
6. The application of quality control procedures.

The engineer shall continuously, at his own discretion, inspect and monitor the progress of the works. The contractor shall correct such deviations from the specification at his own expense.

The contractor shall on no account be relieved by these inspections from this responsibility as specified in the bid documents. These inspections shall not be seen as final approval of any work or any part thereof.

QUANTITY OF MATERIAL AND EQUIPMENT

Detailed, firm and complete quotations are to be submitted by the bidder in respect of all quantities of material and equipment based on detailed and careful examination of the specification requirements and local conditions pertaining to the project.
Any matters in doubt must be clarified with the engineer before submission of bid.
The Client shall not consider variations except where additional work at the specific request of the engineer is required.

MATERIAL SUPPLIED BY THE ENGINEER

The engineer and the Client reserves the right to supply any of the material quoted for, free of charge. The contract value will be reduced by the value of such material. The value will be determined by using the rates quoted in the schedules supplied by the bidder. The bidder will be advised, preferably at the time of bid, but no later than notice of acceptance of bid, of the full details of the material to be supplied free of charge.

TERMS AND CONDITIONS

General terms and conditions of contract shall be as indicated in the SCM Package.

PENALTIES

Penalties shall be as stipulated and in line with principal contractor's penalties clause

CONTRACT PRICE ADJUSTMENT PROVISIONS

Notwithstanding anything to the contrary in any offer or bid, the bidder is advised that the bid must include for any fluctuations in cost of any reason whatsoever.

STORING OF GOODS ON SITE

The bidder shall take into consideration that the project is at correctional centre and all allowance shall be made accordingly to comply with DCS security requirements.

The engineer and the client are under no obligation to provide the contractor with storage space of any nature during the contract. The bidders shall ensure that they price accordingly for safe storage space on-site for safekeeping of all the electrical equipment and material onsite.
Should the main contractor shall be deemed responsible for the safekeeping of the goods or equipment for which the storage space is allocated to and utilised for, unless otherwise stated and agreed upon with the main contractor.

EMERGENCIES/FAULTS/FAILURE/CALL OUTS

The contractor shall inform the engineer and client representative in writing of the company appointed representative concerned of the names, addresses and telephone numbers of his personnel to be called to repair breakdowns.
The contractor shall be responsible for ensuring that one or more members of his personnel are available on call at all times to receive fault or failure reports.

Members of the contractors' personnel must, while on call, keep the duty personnel at the installation informed of their movements in order for them to be contacted without delay in case of an emergency.

The contractor must keep the engineer, client representative and centre manager of the installation informed of the names of the members of his personnel who will be able to receive calls during specific periods. The contractor shall respond to a call out within four hours, failure to comply with this may result in a claim against the contractor to remedy the fault by another contractor.

INTELLECTUAL PROPERTY

Any product, system or program developed by the contractor for this contract, shall remain the property of the Client. Re-use of such intellectual property for any other purpose whatsoever is hereby strictly prohibited, unless authorized by the Client.

PROGRESS REPORT

The successful contractor shall submit weekly progress report no later than 10H00 every Friday till the project is completed and accepted by the client, unless otherwise instructed in writing by the consulting engineer or principal agent.

The main contractor project manager and project engineer(s) shall have weekly virtual progress meeting to ensure that the project is on track and any risk identified is attended to timeously.

There will also be one(1) formal progress meeting on 3rd week of each month where client implementing agent and end user client representative maybe in attendance. The main contractor is required to submit their formal monthly progress report not later than 48hours before the scheduled forma progress meeting and not later then 24hours before the virtual progress meeting.

The report reporting shall reflect main contractor progress on-site *(and off-site with regard to generator manufacturing)* and highlighting any problems experienced on site and action taken to recover including risk management register, to the engineers representatives. This shall begin upon awarding of the bid and shall end with a final report on completion of the project.

The progress report shall include but not limited to:-

i. A detail MS Project WBS indicating percentage of work done, actual start date, completed date, progress on critical path inline with the approved baseline.
ii. Risk register
iii. Labour Statistics inline with IDT format.
iv. Sub-contractors
v. Progress photos
vi. SHEQ representative report.

The progress report does not eliminate the contractor of his responsibility to claim for extension of time inaccordance with conditions of contract should extension be justifiable.

This is to be strictly adhered to, as penalties shall be enforced if slippage occurs without submission of regular progress reports to the Engineer.

NATIONAL STANDARD REQUIREMENTS AND COMPLIANCE.

In addition the entire installation shall be carried out in accordance with the latest revision of the standards listed below and comply in all respects with the conditions stated.

The National Building Regulations.	SANS 10400, as amended
Wiring of Premises. Part 1 Low Voltage Installation	SANS 10142-1: 2021, as amended
The Occupational Health and Safety Act.	Act 85 of 1993 as amended
Municipal Bi-Laws	Local municipality bi-laws relating to electrical installations works.
Department of Public Works & Infrastructure	Government buildings in relation to correctional centre electrical installation. Government building outdoor emergency generators general installations Government buildings Uninterruptable power supply general installation.

Contractors must also take cognisance of the fact that while the document has endeavoured to provide reasonable project specifications for the systems in the building, the responsibility for the correct operation of the installation remains with the contractor, thus any deficiencies in the document must be bought to the attention of the engineer's such that any necessary additions can be brought about before the bid closing date.
Contractors are required to utilise their own key staff/ permanent staff for the installation due to the nature of security of the building and to contain information of the project.
The use of sub-contractors for installation will not be allowed besides the generator manufacturer and all contractor project personnel will be required to be identifiable by wearing overalls/clothing with clearly marked company logo and shall be subjected to police clearance prior to gaining site access*(this shall form part of the pre-site hand-over documentation required from contractor)*.
Furthermore staff must be confined to the site in progress as no loitering or wandering around the buildings will be tolerated. Any personnel in violation of this the end user client reserve the right to restrict/revoke access. No personnel will be allowed to work alone one site.

No claims in respect of failure by the contractor to comply with the above will be considered.

Only equipment for which an SANS/SABS Letter of Authority has been issued will be considered.

Prospective bidders shall be prepared to make available to the Engineers a copy of the relevant Letter of Authority together with copies of such test reports as may be required.
Equipment that simply carries the CE mark may not be accepted as complying with the requirements above.

INTEGRATED DOCUMENTS

The project and technical specifications, standards and drawings of the systems shall form part of this specification to the extent shown herein.

In the event of conflict between the referenced document and this specification, the contents of this specification and the Clients documentation must be considered as a superseding requirement.

NRS 042:2004, as amended	Guide for the protection of electronic equipment against damaging transients
SABS 034,as revised	Protection of Electronic Equipment against lightning and over-voltage surges
ISO 9000, as amended	Quality management and quality assurance guidelines for selection and use.
ISO 9001	Model for Quality Assurance in Design, Development, Production, Installation and Servicing
ISO 9002	Model for Quality Assurance in Production and Installation.
ISO 9003	Model for Quality Assurance in Final Inspection and Test.
ISO 9004	Quality Management and Quality System Elements Guidelines.

ISO 9004-2	Quality System Management and Quality System Elements, Part 2: Guidelines for Service.
ISO 8402	Quality Vocabulary.

COMPLIANCE EVALUATION INFORMATION REQUIRED AT BID STAGE

The contractor shall generate tables similar to the one shown below wherein compliance or non-compliance with each clause of the specification must be indicated and shall be attached to the bid document as “bid compliance report”.

Where the contractor does not comply, he will specify the deviation in the space provided as well as give the willingness and/or ability to modify his product or procedure in order to comply.

In the absence of this detailed compliance and non-compliance document in the bid document during evaluation the client and technical evaluation, team shall assume that the bidder complies fully with every section and subsections of the specification in its entirety.

As much space as is necessary to put a response must be allowed, however precise responses are preferred.

The engineer shall assume that the contractor complies fully with the specification in the absence of a detailed compliance report during submission of bid. Bidders shall also complete the equipment and price schedule.

PHYSICAL AND TECHNICAL CHARACTERIST OF ALL SYSTEMS

The dimensions, mass, power rating of the equipment offered must be clearly indicated by the bidder. Bidders shall provide full technical information with their bid regarding equipment characteristic for complete systems including the system’s performance to enable the engineer to evaluate technically.

The client, Project Manager and consulting Engineer reserve the right to request a physical sample during bid evaluation.

RELIABILITY

The useful life of offered equipment must be indicated assuming normal usage.
The incidence of failure of offered equipment leading to the different conditions given below shall also be indicated:-

i. Failure leading to total operational collapse or widespread loss of facilities sufficient to render the system inoperative.
ii. Failures of equipment or units that render that piece of equipment or unit inoperative but not influencing the system operation greatly.
iii. Failure of field replaceable units e.g. circuit cards etc.
iv. The high reliability and availability of the system with minimum down time is an important requirement and bidders shall provide quantitative information about guaranteed maximum downtime.

MAINTAINABILITY

The system must be well documented for ease of maintenance. Diagnostic facilities must provide the operator and maintenance personnel with a good maintenance tool in the sense of fault finding, logging and reporting.

The diagnostic facilities must form part of the maintenance document, which shall be handed over to the client during the official site hand over.

Preventative maintenance shall be indicated as outlined in the technical specification.

AVAILABILITY

All equipment supplied must be backed up with enough stock to be able to provide the maintenance staff with all equipment and components to keep the system operational for at least the next ten years after installation. All key parts shall have local spares in Province and shall have local technical support.

Any updates or changes necessary to overcome failures or deficiencies within the system must be carried out free of charge for a minimum period of five years. All documentation that needs to be updated as a result thereof must also be free of charge.

ENVIRONMENTAL CONDITIONS

The Contractor shall ensure that the offered equipment operates at the following conditions:

Altitude	0 to 1700m above sea level, unless otherwise stated
Ambient temperatures	-50 to +500 C
Air pollution	dry air, industrial and locomotive fumes containing metallic dust.
Wind	Strong gale force winds (steady and gusting) with driving rain and sand can be expected.
Relative humidity	95%
Lightning	The contractor shall be responsible for any damages due to the lightning strikes to electronic equipment not duly protected.

Standard electronic equipment from overseas manufacturer shall not be accepted if duly protected with tranzorbs and metal oxide varistors (MOV's) in power supplies and external communication lines. The connecting cable between electronic units shall be a continuous screen(not braided) and which shall be earthed only on the one side(head-end) irrespective of the fact whether the cable runs in a single building or between or multi building site.

The contractor shall clearly specify what precautions are taken to protect the equipment. The system shall be protected against the effects of lightning surges via direct strikes, main borne surges or re-induction in site cabling.

DESIGN AND MATERIALS

All equipment and materials supplied shall be new, the best of quality and designed to ensure satisfactory operation under varying atmosphere, climatic, humid tropical conditions without distortion and deterioration in any part affecting efficiency and reliability of the systems.

All equipment shall also be designed to provide the necessary safety to human life and property during operation and maintenance and particular attention shall be given to electrical safety precautions.

The Contractor shall check the finishing paint work and touch up all damaged parts after the installation of equipment.

The Contractor shall provide manufacturer's literature including manufacturer's data on maintenance and operation of all equipment installed. Relevant catalogues of all materials, instruments, equipment, components, etc. supplied shall be included in this Bid.

All equipment and materials shall be permanently and legibly marked to indicate clearly the name of the manufacturer or the registered trade name or registered trade mark.

All equipment and materials shall be new and unused. All materials must be of the type and quality to ensure that the work complies with the requirements of the ISO 9001 Specifications and must be suitable for the site conditions. Site conditions must include all aspects regarding environmental conditions, installation location, storage and aspects regarding normal use, wear and tear.

All systems and subsystems shall have internal protection against over-voltage and lighting surges on all communication, audio and power lines. The contractor shall take cognisance of the information regarding quality of electrical supply and lighting probability applicable to this installation.

ELECTROMAGNETIC RADIATION AND SUSCEPTIBILITY

The contractor shall take cognisance of the environment in which the system must operate and ensure that the equipment supplied will work satisfactory without causing interference caused by other equipment. (e.g. radios, switching and electric arcs).

NAMEPLATES AND MARKING

All equipment shall be labelled by means of a unique numbering system for easy identification of the subsystem it is connected to as well as its location. The Contractor shall submit a numbering system as well as examples of the labels for approval by the consulting engineer.

Each conductor shall have a unique number and the same number shall appear at both ends of each conductor. Wiring numbers shall appear on all as-built drawings. Terminal boxes and terminals shall be numbered and labelled accordingly. Labels shall be permanent and indelible.

Numbering and labelling shall be executed in such a way that it can be guaranteed that a maintenance artisan can trace wiring (cores) with the as-built information only. The Contractor is required to prove to the Engineer that this requirement is met.

ACCEPTANCE TEST

The electrical installation shall be tested by the contractor prior to the Engineer representative been informed of final pre practical completion testing & at manufacturer of the genset and automatic change over been dispatched to site. The contractor shall submit to the Engineer representative copies of the comprehensive test results prior to the Engineer’s snag inspections.

The contractor shall inform the engineer in writing for Quality Inspections as follows:

1. At manufacturer plant , for pre delivery clearance, the Genset shall not be delivered to signed without written confirmation by client engineers on the Manufacturer’s Quality Control test results

2. On site for practical completion.

WORKMANSHIP

The contractor shall be fully responsible for the following:-

1. Installation and execution of the Works according to this document
2. Provision of logistic all systems and infrastructure required
3. Full time supervision on-site over the execution of the Works
4. Programming and management of the Works.
5. Ensure that all conduit are installed for relevant services and liaise with relevant electrical contractor

6. Check all conduits timeously to ensure that there is no blockage prior to installation of the cabling and if problem is picked up resolve with relevant contractor and site engineer to avoid delays in installation.
7. Compliance to the relevant Codes, Standards, Specifications and Regulations.
8. Provision for registered and qualified skill and labour as required by the appropriate Acts and Regulations.

The Engineer shall inspect and monitor the progress of the Works. The Contractor shall correct all deviations at his own expense. The Contractor will on no account be relieved by these inspections from his responsibility as specified in this document. These inspections shall not be seen as final approval of any work or any part thereof.

INTERCHANGEABILITY

It is a requirement that it be possible to interchange similar items within the system. It shall be required of the bidders to indicate the level to which the system is interchangeable.

SAFETY

The Contractor shall ensure that all the works will adhere to THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT 85 OF 1993) as revised, as well as the Clients requirements. This shall include compliance with Covid 19 regulations.

Complete comprehensive SHEQ file shall be submitted by the appointed bidder within 5 working days from date of accepted appointment shall include the following but not limited to:-

i. Electrical Standby generator Safety plan.
ii. Quality management plans for:-
    a. Generator & Automatic change over panel manufacturing
    b. Electrical Installation
    c. Construction of Genset concrete plingth
iii. Risk management plan
iv. Department of labour letter of good standing & Notification confirmation
v. Project Staff Organogram
vi. Appointment of SHEQ representative (fulltime onsite)
vii. Appointment of Site Manager
viii. SAPS clearance certificates of all personnel that will be working onsite.
ix. Covid 19 management plan.
x. Noise management plan

ERGONOMICS

Ergonomic principles and procedures shall be applied throughout the detailed design, manufacture, construction, and installation and testing of all equipment.

CABLING PRACTICE

All cables shall be run and installed in a workmanlike manner and in routes approved. The Contractor shall plan the cabling system and routing to ensure system integrity and performance, and that it does not present problems of maintenance, access nor conflict with the operation and maintenance of other systems.

No exposed cabling shall be allowed in the correctional facility.

The Contractor shall in his bid submission, give full details of the type of cables used including the type of termination, colour scheme, identification method, method of installation and shielding, limitations (if any) and any other relevant telecommunication.

Support all cabling within the false ceiling space or under raised flooring by steel cable tray, trunking and/or duct, centenary wires, fixed by approved hangers and methods.

Group cables neatly together in bundles not exceeding 50 cables per bundle. Do not try to arrange cables in bundles in straight lines leave in a random lay, to help eliminate crosstalk between cables and bundles.

Maintain at all times a minimum of 150mm spacing from parallel runs of electrical cabling and 300mm from fluorescent lights. Where telecommunications cables cross, electrical cables this shall be at right angles with approved local regulations for separation/segregation adhered to, with a minimum of 6mm of durable insulation material 300mm long with at least 25mm of overlap.

Provide adequate support for all cabling that is vertically installed, ensuring that the weight of the cables is sufficiently supported.

Provide and use screwed moulded plastic bushes to protect cable, with the use of lock nuts inside the trunking or tray work to ensure bush remains securely in place.

Before cable is installed and after installation ensure that trunking and tray is thoroughly clean of any extraneous material, such as cable scraps, dust, dirt and construction debris.

Co-ordinate all trunking and tray work fully with other services on site as necessary.

All cable trays and centenary wires shall be earthed to a protective earth from the electrical distribution board on the floor where such cable tray is installed. It shall be the contractor's responsibility to ensure that the reticulating contractor has properly earth all wire ways according to the stipulated rules and regulation set out.

The contract shall ensure that no interference/disturbances/noise in picked up by the communications cabling and shall ensure that all lighting and air-conditioning duct does not affect the minimum requirements of telecommunication cabling and systems.

Cables shall be secured with plastic cable ties on cable trays and properly labelled.

Where cabling is installed in partitions and similar enclosures, install cables in free spaces free from protrusion of screws and similar fasteners. Remove all sharp edges and allow slack in cable runs.

Where cables are installed in partitions or false walls through studs, ensure bushing is secured in these fittings to protect cables.

Cables shall be installed using a bending radius not less than eight (8) times the overall diameter of the cable. Cables shall be installed ensuring that the hauling tension does not exceed 11.3Kg.

Restrict any single pull to no more than two (2) 90-degree bends, in conduit and ducts.

DOCUMENTATION REQUIREMENTS

All manuals shall be bound properly and thoroughly in a durable cover file. The content of the manual shall be clearly legible, well-structured and supplied with an index.

Three distinctively different types of manuals are required: operator's manuals, technical manuals and maintenance manuals.

The contractor shall submit one set of draft manuals as specified below covering all systems and equipment under this contract to the engineer 10 days before the scheduled pre-hand over date.

The engineer will compare the submission with the requirements and return the copy with comments for revision by the contractor.

The contractor shall revise the manuals before the scheduled pre-hand over date and final presentation to the client.

MANUALS

The Contractor shall ensure that the manuals shall cover the following areas:

1. A detailed overview of the systems installed
2. Full description of the specific installation
3. Full schematics showing the overall layout of the installation
4. Floor layout drawings showing the location and designation of each piece of equipment installed, location of cable trays and ducts.
5. Full and detailed schematic diagram showing equipment layout in each equipment rack.

Soft copies:

- MS WORD
- MS EXCEL
- AUTOCAD in Dwg format& Pdf

These manuals shall give a basic description of the system, pictorial layout of the system's various components, pre-switch-on checks, performance, facilities, specifications as well as calibration and system checks. The bulk of the manual shall comprise operational procedures.
The contractor shall issue the engineer with one full manual for scrutiny two full days before the pre -scheduled testing with the Engineer.

The engineer will reissue the manuals with comments to be updated before the practical hand over.

The contractor shall also supply final three (3) copies to the engineer during the scheduled hand over to the client after the scheduled testing procedure.

Maintenance manual shall incorporate operator's instructions must contain one(1)complete set of final drawing as mentioned below.

Information of all subsystems, components, etc. of each part of the installation must be supplied, also indicating the position of each component, the manufacturer, the type, the series number, performance data, i.e. full detail to enable any outside party to perform comprehensive maintenance of the total installation.

Routine control test as well as inspections that must be performed on individual components or part of the installation must be indicated. The various intervals and period at which these test and inspections must be performed must also be mentioned.

These manuals shall enable the employer's technical personnel to maintain service and repair the system. This manual shall contain as a minimum requirement of the following information:

1. Maintenance schedules and instructions
2. Logic and block diagrams
3. Termination schedules
4. Interfacing schedules
5. All wiring diagrams
6. As-built drawings
7. Circuit diagrams and descriptions
8. Component schedules
9. Spare parts list.

The Contractor shall allow for the above documentation in his offer and no additional claims will be granted after the award of this contract.

Manuals shall be printed in pure English ONLY.

Upon or before receiving final payment, the Contractor shall return to the Engineer all drawings and documents bearing the Engineer and/or the Clients name. None of the documents herein before mentioned shall be used by any of the parties hereto for any other purpose than the execution of this Contract and neither of the parties shall divulge of use, except for the purpose of this Contract any information contained in these documents.

All systems and equipment shall be configured and manufactured in accordance with working drawings. Copies of such drawings shall be submitted to the Engineer for approval and to demonstrate compliance with c ontract documents. Working drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data that are prepared by the Contractor, manufacturer, supplier or distributor.

The engineer's approval of shop drawings or samples is limited to the checking of conformity with design requirements and shall not relieve the contractor of responsibility for manufacturing or installation, fitting or for any deviation from the requirements of this contract unless the successful contractor has informed the engineer in writing of such deviation at the time of submission of tender stage and the client and/or engineer has given written approval for the specific deviation.

The engineer approval shall not relieve the contractor of responsibility for errors or omissions in the shop drawings or samples.

LOGISTIC SUPPORT REQUIREMENTS

36.1 Maintenance

The contractor shall maintain and guarantee the total installation for at least 12 calendar months with no cost to the owner. The Contractor shall submit quarterly reports listing full details of all equipment or system defects and repairs affected during the guarantee period. The terms of the guarantee and warranty shall not be limited to the bidders covering letters or documentation.

The contractor shall in the course of such maintenance be on call at all times during the maintenance period, to repair or replace defective parts if required and shall use only genuine parts produced by the manufacturer of the original part.

The contractor shall provide all spare parts and labour and all related services during the guarantee and maintenance period free of charge. Repairs resulting from misuse of equipment by the Client however will not be made at the expense of the Contractor.

Any tool or test equipment required for maintenance of the system which is not normally found in a standard tool kit or available as a normal test instrument in a maintenance workshop shall be provided with the system or offered as an option.

The Contractor shall propose a preventative maintenance procedure including the frequency of such procedures to ensure reliable operation of the system.

36.2 Suppliers

A proposed list of spare parts and items needed to be kept in stores for the maintenance of the system after the guarantee period shall be submitted by the bidder, with a cost schedule. All spares shall have agents in the Free State Province area.

36.3 Facilities and equipment

To support the maintenance of the system by the maintenance staff, facilities for the repair, maintenance exchange and purchase of spare parts and items shall be available for a minimum period of 10 years from the commissioning date of the equipment, at a cost that is competitive with normal purchase prices for similar items.

The contractor shall give full particulars of the maintenance, spare parts and service facilities available in South Africa. The names and addresses of the persons concerned shall be furnished. A waiting time to import spares will not be acceptable. The spares response time shall be 2 hours.

QUALITY ASSURANCE PROVISIONS

37.1 Responsibility for Inspection

The contractor shall exercise effective quality control during the design, manufacture and installation of the system as specified in this document. The contractor shall present the work for hand over only if he/she has made sure that it complies with all the requirements of the specification and only if he is satisfied that the work is what is required.

37.2 Tests and Examinations

The contractor shall test and commission the system to a mutually agreed method before confirming in writing an official date of hand over with the Engineer. The Contractor shall simultaneously state in writing that he is satisfied that the complete system is fully operational and according to the Specification.

As soon as the Engineer is satisfied that the system complies with the Specification, the Contractor shall hand the system over to the Client's technical representative. During this occasion the correct functioning of the system shall be demonstrated to the client.

The Contractor shall be responsible for all test equipment dummy loads, measuring equipment personnel, two-way radios etc. required for above demonstrations. Test equipment shall be of good quality and calibrated by an NCS approved facility.

PROJECT KEY DATES

38.1 Material Programme

Bidders shall provide a proposed overall project programme that indicates that they shall comply with the Main Contractors program.

Bidders shall note that the equipment is required as soon as possible and bidders shall include lead times in their bid offer.

Project must complete by end of February 2024 or earlier.

38.2 Work Programme

The successful bidder shall provide a detail works programme detailing the main activities.

38.3 Acceptance

At the conclusion of the installation, a preliminary walk through with the installation contractor will be performed to check for installation quality, accurate performance of the work, and to verify engineering diagrams. Any modifications to the documentation or the installation that may be required shall be accomplished within a 1-week period. "Customer Acceptance" shall consist of a final walk through with the installation contractor. The walk through shall be scheduled within 1 week of the completion of the installation in order to turn the project and documentation over to the end user.

Please note that "Client Acceptance" does not release the installation contractor from repairing any cabling errors or improperly labelled circuits, caused by the installation contractors that may be discovered later.

Should the client not accept the installation the contractor shall make good all the defaults within 24 hours at his own cost, failure to do shall result in a penalty being applied.

PART C3.2: TECHNICAL SPECIFICATION

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

NATIONAL DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE

ELECTRICAL ENGINEERING SERVICES

SPECIFICATION FOR THE SUPPLY, INSTALLATION AND COMMISSIONING OF AN OUTDOOR EMERGENCY GENERATOR SET

Engineering Services Chief Directorate
Electrical Engineering Directorate
Electrical Engineering Standards & Specifications Committee
256 Madiba Street
Pretoria

1. SECTION 1 – GENERAL

1.1. Intent of Specification

The specification is intended to cover the complete installation and commissioning of the generator plant. The minimum equipment requirements are outlined, but do not cover all the details of design and construction. Such details are recognised as being the exclusive responsibility of the contractor.

For the purposes of this document, the following applies:

- Generator Contractor shall be referred to as the Generator Contractor or simply Contractor;
- The masculine includes the feminine;
- The singular includes the plural.

1.2. Standards and Codes

All standards referenced shall be the latest editions.

SANS 10142-1: 2021	The wiring of premises: Low Voltage Installations
SANS 8528	Reciprocating internal combustion engine driven alternating current generating sets.
SANS 60034	Rotating electrical Machines
SANS IEC 60947	Low Voltage Switchgear
OHSACT	Occupational Health and Safety Act.
	Department of Public Works Quality Specification Parts A, B and C.
	Local municipality by-laws for generator installations. (To be obtained from local municipality)

1.3. Compliance with Regulations

The installation shall be erected and tested in accordance with the following Acts and regulations:

a) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended,
b) The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended and the municipal by-laws and any special requirements of the local supply authority,
c) The Fire Brigade services Act 1987 (Act 99 of 1987) as amended,
d) The National Building Regulations and Building Standards Act 1977 (Act 103 of 1977) as emended,
e) The Electricity Act 1984 (Act 41 of 1984) as amended.
f) The environmental Act and regulations

1.4. Scope of Work

Included in this Outdoor Generator Specification

Supply, delivery, installation and commissioning of the complete outdoor emergency generator inside an IP65 canopy/container set on a concrete plinth as specified in this document.

The successful tenderer shall supply, deliver and install a complete single enclosed diesel driven standby generator set in a position that will be determined on site. The machine shall be totally enclosed in a 3CR12 stainless steel housing powder coated or within 50km from the coast with grade 316 steel housing powder coated. The exhaust shall be manufactured from stainless steel.

The housing is to be provided on galvanized 3CR12 stainless steel skids so that the generator set can be transported to site and placed in position on a concrete plinth, casted by the successful tenderer. The skids must be of sufficient height to allow for the passage of storm water under the set.

1.5. Co-ordinating

The bidders are required to take note that the site is a correctional facility and strict installation and access shall be adhere to at all times.

The Contractor shall familiarise himself with the requirements of the other professional disciplines and shall examine the plans and specifications covering each of these sections.

The generator space, noise and vibration requirements shall be carefully checked with other professional disciplines to ensure that the equipment can be installed in the proper sequence in the space allotted.

The generator silencer shall comply with residential noise levels.

1.6. Tests Certificates and Inspections

The following tests are to be carried out:

a) At the supplier's premises, before the generating set will be delivered to site, representatives of the department, consulting engineers and implementing managers must be present during the test to satisfy themselves that the generating set complies with the specification and delivers the specified output. The test must be carried out in accordance with SANS 8528. The Representative/Agent must be timeously advised of the date for the test.
b) After completion of the works and before practical completion is taken, 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 installation will be inspected and the contractor shall make good, to the satisfaction of the Representative/Agent, any defects which may arise.
c) 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 installation at completion.
d) Test reports of both tests as specified under (a) and (b) are to be submitted to the Representative/Agent.

The total costs for these test shall be included in the tendered amount.

In the event of the plant, equipment or installation not passing the test, the Representative/Agent shall be at liberty to deduct from the Contract amount all reasonable expenses incurred by the Employer and/or the Representative/Agent attending the test.

1.7. Operating and Maintenance Manuals

The Contractor shall be responsible for the compilation of a complete set of Operating and Maintenance manuals.

This shall be done in accordance with Section 4 – Operating and Maintenance manuals.

All information shall be recorded and reproduced in electronic format as well as supplying the Representative/Agent with three sets of hard copies.

Approval of the final Operating and Maintenance Manuals shall be a prerequisite for issuing of a Certificate of Practical Completion of the installation.

1.8. Guarantee

After works completion of the installation have been achieved, there will follow a 12-month free maintenance period.

During this period the generator contractor shall maintain the generator installation as per the requirements of the Occupational Health and Safety Act. This maintenance shall include systematic examinations, adjustments

and lubrication of all generator equipment. Electrical and mechanical parts shall be repaired or replaced whenever it is required to maintain optimum performance without additional cost to the Department, unless the condition was caused by misuse or vandalism of the generator equipment or natural hazards/force majeure.

The work under this section shall be performed by competent, qualified accredited personnel under the supervision and in the direct employment of the Generator Contractor and shall not be transferred to any non-affiliated agent. Contract maintenance and repair work shall be done during normal working hours and shall further provide emergency call-back service twenty-four (24) hours a day, seven (7) days a week.

During the guarantee/maintenance period the Department will invite tenders for the comprehensive maintenance of the generator, which will commence after the final completion has taken place, i.e. after the twelfth month guarantee period is over and all defects are corrected.

1.9. **Materials and Workmanship**

a) The work throughout shall be executed to the highest standards and to the entire satisfaction of the Representative/Agent who shall interpret the meaning of the Contract Document and shall have the authority to reject any work and materials, which, in his judgement, are not in full accordance therewith. All condemned material and workmanship shall be replaced or rectified as directed and approved by the Representative/Agent.
b) All work shall be executed in a first-class manner by qualified accredited tradesman.
c) The Contractor shall be fully responsible for his work and shall replace any of the work which may be damaged, lost or stolen. The Contractor shall protect the building and its contents against damage by him, his employees or sub-contractors and shall make good any damage thereto.
d) The Contractor shall indemnify the Employer of all liability for damages arising from injuries or disabilities to persons or damage to property occasioned by any act or omission of the Contractor or any of his sub-contractors, including any and all expenses, legal or otherwise, which may be incurred by the Employer or Representative/Agent in the defence of any claim, action or suit.
e) The Contractor shall warrant that the materials and workmanship shall be of the highest grade, that the equipment shall be installed in a practical and first-class manner in accordance with the best practices and ready and complete for full operation. It is specifically intended that all material or labour which is usually provided as part of such equipment as is called for and which is necessary for its proper completion and operation shall be provided without additional cost whether or not shown or described in the Contract Document.
f) The Contractor shall thoroughly acquaint himself with the work involved and shall verify on site all measurements necessary for proper installation and commissioning work. The Contractor shall also be prepared to promptly furnish any information relating to his own work as may be necessary for the proper installation work and shall co-operate with and co-ordinate the work of others as may be applicable.
g) The Contractor shall inspect and verify that the existing power feeder system is compatible with the equipment offered and any changes or upgrading of the electrical supply shall be brought to the attention of the Representative/Agent.
h) Material and equipment damaged in transit shall be replaced with undamaged material without additional cost to the Department.
i) All components and their respective adjustment, which do not form part of the equipment installation work, but influence the optimum and safe operation of the equipment shall be considered to form part of, and shall be included in the Contractor’s scope of works.
j) All control equipment and serviceable items shall be installed and positioned such that they will be accessible and maintainable.
k) The Contractor shall make sure that all safety regulations and measures and environmental regulations are applied and enforced during the installation and guarantee period to ensure the safety of the public and the User Client.

1.10. **Brochures**

Detailed brochures of all equipment offered shall be presented together with the tender documents.

SECTION 2 – EQUIPMENT REQUIREMENTS

2. SECTION 2 – EQUIPMENT REQUIREMENTS

2.1. Engine

2.1.1. General

The engine must comply with the requirements laid down in SANS 8528 and must be of the atomized injection, compression ignition type, running at a speed not exceeding 1500 r.p.m. The engine must be amply rated for the required electrical output of the set, when running under the site conditions. The starting period for either manual or automatic switching-on until the taking over by the generating set, in one step, of a load equal to the specified site electrical output, shall not exceed 15 seconds. This must be guaranteed by the Tenderer.

Turbo-charged engines will only be accepted if the Tenderer submits a written guarantee that the engine can deliver full load within the specified starting period.

Curves furnished by the engine makers, showing the output of the engine offered against the speed, for both intermittent and continuous operation as well a fuel consumption curves when the engine is used for electric generation, must be submitted with the Tender.

2.1.2. Rating

The set shall be capable of delivering the specified output continuously under the site Conditions, without overheating. The engine shall be capable of delivering an output of 110% of the specified output for one hour in any period of 12 hours consecutive running in accordance with SANS 8528.

2.1.3. De-Rating

The engine must be de-rated for the site conditions as set out in the Technical Specification, Section 3 of this document.

The de-rating of the engine for site conditions shall be strictly in accordance with SANS 8528 as amended to date. Any other methods of de-rating must have the approval of the Department and must be motivated in detail. Such de-rating must be guaranteed in writing and proved by the successful Tenderer at the site test.

2.1.4. Starting and Stopping

The engine shall be fitted with an electric starter motor and be easily started from cold, without the use of any special ignition devices under summer as well as winter conditions.

Tenderers must state what arrangements are provided to ensure easy starting in cold weather. Full details of this equipment must be submitted. In the case of water cooled engines, any electrical heaters shall be thermostatically controlled. The electrical circuit for such heaters shall be taken from the control panel, and must be protected by a suitable circuit breaker.

2.1.5. Starter Battery

The set must be supplied a fully charged lead-acid type or maintenance free type battery, complete with necessary electrolyte. The battery must have sufficient capacity to provide the starting torque stipulated by the engine manufacturer. The battery capacity shall not be less than 120 Ah and shall be capable of providing three consecutive start attempts from cold and thereafter a fourth attempt under manual control of not less than 20 seconds duration each. The battery must be of the heavy duty “low maintenance” type, house in a suitable battery box.

2.1.6. **Cooling**

The engine may be either of the air or water cooled type. In the case of water-cooling, a built-on heavy duty, tropical type pressurised radiator must be fitted. Only stand-by sets that are water cooled shall have electric heaters.

For either method of cooling, protection must be provided against running at excessive temperatures. The operation of this protective device must give a visual and audible indication on the switchboard. Water-cooled engines shall in addition be fitted with a low water cut-out switch, installed in the radiator, to switch the set off in the event of a loss of coolant. The protection shall operate in the same way as the other cut-outs (e.g. low oil pressure). All air ducts for the cooling of the engine are to be allowed for. The air shall be supplied from the cooling fan cowling/radiator face to air outlet louvers in the enclosure.

2.1.7. **Lubrication**

Lubrication of the main bearings and other important moving parts shall be by forced feed system. An automatic low oil pressure cut-out must be fitted, operating the stop solenoid on the engine and giving a visible and audible indication on the switchboard.

2.1.8. **Fuel Pump**

The fuel injection equipment is suitable for operation with the commercial brands of diesel fuel normally available in South Africa. An electrical fuel pump shall be supplied completed with the genset housed inside the generator enclosure.

2.1.9. **Fuel Tank**

The fuel tank shall be an integral part of the base frame of the generator set. **The tank shall have sufficient capacity for standby sets to run the engine on full load for a period of 24 hours.**

The diesel fuel storage system / tank which will be provided with the standby generator installation must be fitted with a fuel filtration and water separation system (filter & separator) which is entirely separate from the fuel supply line and line filter to the engine. This filtration and water separation system must be dedicated to purifying the content of the storage system / tank by way of the cleaning processes which are applied while circulating the fuel through the filter & separator unit.

The filtration system must be able to handle diesel fuel of “high” and of “low” sulphur content for an indefinite period. The suction line of the system must be connected to the lowest part of the storage system / tank. The return line must be connected in the top section of the storage system / tank in such a position and in such a way that the flow of fuel within the storage system / tank between the fuel return point and the fuel suction point will induce scouring of the bottom of the system / tank to effectively capture sediment and water in the to be filtered fuel.

The filtration unit must filter the diesel fuel, removing suspended particles of effective diameters down to 5 microns. In addition, it must separate all water from the fuel and the fuel storage system and automatically dispose of / dump such water into an open, removable receptacle for disposal at the installation or in a suitable position outside the building. Separation of the fuel and water must be sufficiently effective that the discharged water will meet the standard required for it to be disposed of into a municipal drain and sewer system.

The filter and water separator unit must draw its power from the DC batteries used to power the relevant generator set. The circulating pump shall be provided with a controller programmed to switch the pump through not more than three complete on and off cycles of equal time (i.e. 50% on; 50% off), per hour, with a deviation of not more than 10 % ±. The pump must be capable of a duty cycle of not less than 60% running time. The flow rate through the circulating pump must be between 1 L/min and 1.25 L /min.

The filter cartridge of the filter and water separator unit must be replaceable, and, in normal operational conditions, not require replacement within periods shorter than three months. The replacement units must be readily available.

The filtration & separator system may be mounted against the wall of the plant room or on the inside of a container, which may house the installation as may be specified elsewhere in this document.

The tank shall be fitted with a suitable filter, a full height gauge glass, “low fuel level” alarm, giving an audible and visible signal on the switchboard as well as a low-low fuel level cut-out.

An electrically operated pump with sufficient length of oil resistant hose to reach 2m beyond the door of the canopy/container, shall be supplied, for each set for filling the fuel tank/s from 200 litre drums.

The interconnection fuel piping shall consist of copper tubes and the connection to vibrating components shall be in flexible tubing with armoured covering.

The contractor shall allow for the supply and installation of a fuel shut off fusible link in the container. The fusible link shall shut off the fuel at a temperature of 130 degrees in an event of a fire in the self-contain enclosure. The fusible link shall be mounted above the engine and coupled to the shut off valve by means of a 2mm stainless steel cable. The cable shall be installed to the shut off valve without any possibility of kinking the cable which may cause malfunctioning of the protection device.

2.1.10. **Governor**

The speed of the engine shall be controlled by a governor in accordance with ECM of SANS 8528 if not otherwise specified in the Detailed Specification.
The permanent speed variation between no load and full load shall not exceed 4.5% of the nominal engine speed and the temporary speed variation shall not exceed 10%. External facilities must be provided on the engine, to adjust the nominal speed setting by ± 5% at all loads between zero and rated load.

2.1.11. **Flywheel**

A suitable flywheel must be fitted, so that lights fed from the set will be free from any visible flicker.

The cyclic irregularity of the set must be within the limit laid down in SANS 8528.

2.1.12. **Exhaust Silencer**

It is essential to keep the noise level as low as possible. An effective exhaust silencing system of the residential type must be provided and shall be capable of providing 20 to 30 decibels of suppression or better.

The exhaust system shall consist of 3CR12 steel for inland areas (greater than 50km from the coast) or Grade 304 stainless steel in coastal areas.

The exhaust pipe shall be installed in such a way that the expulsed exhaust fumes will not cause discomfort to the public. The exhaust pipe must be flexibly connected to the engine to take up vibrations transmitted from the engine, which may cause breakage. The exhaust piping and silencer shall be lagged and then cladded in stainless steel sheet to reduce the heat and noise transmission in the generator enclosure and shall be protected against the ingress of driving rain at 45° to the horizontal. The exhaust pipe must extend 0,5m above the canopy.

2.1.13. **Accessories**

The engine must be supplied complete with all accessories, air and oil filters, 3 instruction manuals, spare parts lists, the first fill of all lubricating oils, fuel, etc.

2.1.14. **Exhaust emissions**

The exhaust emissions shall comply with US Tier III/EU stage III standards.

2.2. **Alternator**

2.2.1. **General**

The alternator shall be of the self-excited brushless type, with enclosed ventilated drip-proof housing and must be capable of supplying the specified output continuously with a temperature rise not exceeding the limits laid down in SANS 60034-1 for rotor and stator windings.

The alternator shall be capable of delivering an output of 110% of the specified output, for one hour in any period of 12 hours consecutive running.

Both windings must be fully impregnated for tropical climate and must have an oil resisting finishing varnish.

2.2.2. **Regulation**

The alternator must preferably be self-regulated without the utilisation of solid state elements. The inherent voltage regulation must not exceed plus or minus 5% of the nominal voltage specified, at all loads with the power factor between unity and 0,9 lagging and within the driving speed variations of 4,5% between no-load and full load.

2.2.3. **Performance**

The excitation system shall be designed to promote rapid voltage recovery following the sudden application of the load. The voltage shall recover to within 5% of the steady state within 300 milli-seconds following the application of full load and the transient voltage dip shall not exceed 18%.

2.2.4. **Coupling**

The engine and alternator must be directly coupled by means of a high quality flexible coupling, ISO 9001:2000 approved and must be designed and manufactured to this quality system.

2.3. **Switchboard**

2.3.1. **General**

A switchboard must be supplied and installed to incorporate the equipment for the control and protection of the generating set and battery charging.

The switchboard must conform the specification as set out in the following paragraphs.

2.3.2. **Construction**

The switchboard shall be enclosed in the steel enclosure.

All equipment, connections and terminals shall be easily accessible from the front. The front panels may be either hinged or removable and fixed with studs and chromium-plated cap nuts. Self-tapping screws shall not be used in the construction of the board.

All pushbuttons, pilot lights, control switches, instrument and control fuses, shall be mounted on hinged panels with the control wires in flexible looms.

The steelwork of the boards must be thoroughly de-rusted, primed with zinc chromate and finished with two coats of signal red quality enamel, or a baked powder epoxy coating.

Suitably rated terminals must be provided for all main circuits and the control and protection circuits. Where cable lugs are used, these shall be crimped onto the cable strands. Screw terminals shall be of the type to prevent spreading of cable strands. All terminals shall be clearly marked.

For the control wiring, each wire shall be fitted with a cable or wire marker of approved type, and numbering of these markers must be shown on the wiring diagram on the switchboard. Control wiring shall be run in PVC trunking. The trunking shall be properly fixed to the switchboard steelwork. Adhesives shall not be acceptable for the fixing of trunking or looms.

The modular generator set controller and protection equipment shall be mounted on a separate easily replaceable panel.

All equipment on the switchboard, such as contactors, isolators, busbars, etc., shall have ample current carrying capacity to handle at least 110% of the alternator full load current.

Access to the cubicle will be such that all components can be conveniently reached for testing and maintenance purposes.

The necessary bushes and a screen over the terminals will be provided where the power feeds enter and leave the cubicle.

The cubicle will be so constructed that the ac and dc components are screened from one another.

2.3.3. **Protection and Alarm Devices**

All switchboards shall be equipped with protection and alarm devices as described below.

A circuit breaker and an adjustable current limiting protection relay must be installed for protection of the alternator. The protection relay shall be of the type with inverse time characteristics. The relay shall cause contactor to isolate the alternator and stop the engine.

Protection must be provided for overload, high engine temperature, low lubricating oil pressure, over speed, start-failure, and low water level.

Reset push buttons are required on the modular generator set controller and a visible signal are required and the engine must stop when any of the protective devices operate. In the case of manual operation of standby sets, it shall not be possible to restart the engine.

The indication on the modular generator set controller must be in ENGLISH.

- "OVERLOAD"
- "TEMPERATURE HIGH"
- "OIL PRESSURE LOW"
- "OVERSPEED"
- "START FAILURE"
- "LOW WATER LEVEL"

In addition, an audible and visible flashing signal shall be provided, when:

a) The fuel level in the service tank is low. The indication on the modular generator set controller shall be "FUEL LOW".
b) The battery charger failed. The indication on the modular generator set controller shall be “CHARGER FAIL”

A low-low level sensor must be provided. At this level the engine must stop to prevent air entering the fuel system.

This is also applicable to the engine driven generator/alternator.

All alarm conditions must operate an alarm hooter. A pushbutton must be installed in the hooter circuit to stop the audible signal, but the fault indicating light on the control panel must remain lit until the fault has been rectified.

An on/off switch is not acceptable. After the hooter has been stopped, it must be re-set automatically, ready for a further alarm.

The hooter must be of the continuous duty and low consumption type. Both hooter and protection circuits must operate from the battery.

Potential free contacts from the alarm relay must be brought down to terminals for remote indication of alarm conditions.

A test pushbutton must be provided to test all indicators lamps.

2.3.4. **Modular Generator Set controller**

The modular generator set controller shall be an electronic unit to match those of the other modular generator set controllers and of a high quality i.e. Levato, Deep Sea Electronics, Circom. It must be provided with IO and communication facilities.

The modular generator set controller will be supplied with all its functions and shall be mounted on a separate easily replaceable panel with plug in termination blocks for easy installation and replacement.

The modular generator set controller interface will be implemented with relays, contactors etc.

The modular generator set controller will have a mimic display of the alternator/mains/ change over contactors configuration with LED's showing the status of the mains, alternator and change over contractors.

Configuration software shall be supplied with the system. The software will be capable of the following:

- Fault management (event log)
- Configuration management (software upgrades and function changes)
- Account management (energy management)
- Performance management (generator set point changes)
- Security management (passwords)

The modular generator set controller will have a standard RS 232/485 or Ethernet interface suitable for TCP I/P transport medium. All communication including configuration management will be done through this port. Equipment connected at each end of the RS 232 or Ethernet cable shall be adequately protected against transient over-voltages, lightning effects (particularly if the set and remote alarms are in separate buildings), switching surges, power system surges or mains and alternator borne noise/interference.

The controller will incorporate the following functions:

- Mains sensing
- Alternator output-voltage sensing
- Alternator over- frequency sensing
- Control of processor unit (self-diagnostics)
- Alarm/ Status indications
- Control selector and operation
- Phase rotation monitor

A 4- position control selector on the controller will be provided to facilitate the following modes of operation:

- OFF: Diesel/ alternator generator set switched off

- MANUAL: Mains bypassed: Diesel/ alternator will not take load
- AUTO: Diesel /alternator takes load on mains failure
- TEST: Diesel /alternator takes load on mains failure
- A standby failure alarm (SF) will be given on the controller and to the output alarms when “Not in Auto” is selected.

The modular generator set controller must monitor the following

When the voltage of the incoming mains varies by more than a pre-program value (default +- 10%) from the normal voltage on any phase, the controller will signal that the incoming mains will be disconnected and the engine-starting sequence initiated.

When the frequency of the incoming mains varies by more than pre- program value (default +-5%) from the normal frequency, the controller will signal that the incoming mains will be disconnected and the engine-starting sequence initiated.

Upon restoration of the incoming mains to the pre-program value (default +-10%) of the normal voltage on all phases, the monitor will signal that the load will be disconnected from the alternator and reconnected to the incoming mains.

If the alternator has been disconnected from the load and the incoming mains within the voltage limits of +-10% on all phases, the controller will signal that the load will be reconnected to the incoming mains.

Should the incoming mains fail or not in the specified limits while the engine is running under control of the cooling-off timer, the control for the cooling –off timer in the controller will be cancelled and the load connected to the alternator.

When the output voltage of the alternator varies by more than the pre-program value (default value +- 10 %) on ANY phase, the controller will signal that the load will be disconnected from the alternator and the engine stopped.

A software over and under-frequency monitor will be provided in the controller if the frequency exceeds or drop below pre-programmed values. It will meet the requirements of class G2 governing. The monitor will not be influenced by harmonics.

Note: Software monitors will include adjustable overshoot and undershoot timers to be fully compatible with Class G2 governing.

All timers will be implemented in software.

Incoming supply failure timer
It is essential that incoming supply failures, occurring at short intervals, do not cause a series of starts and stops.
A timer adjustable from 1 s to 10 s required
The timer default value will be generator set to 3 s
The signal generated by the mains voltage monitor will start the timer. If the duration of the signal is less than the generator setting on the timer, the signal is suppressed to that the switching and starting sequence is initiated. However, if the duration of the signal is more than the generator setting on the timer, the signal will be transmitted to initiate the switching and starting sequence.

Incoming supply restoration timer
It is essential that incoming supply failures, occurring at short intervals, do not cause a series of starts and stops.
A timer adjustable from 1 s to 10 s required.
The timer default value will be generator set to 3 s.
The signal generated by the mains voltage monitor will start the timer. If the duration of the signal is less than 150 sec, the signal is suppressed and the timer is regenerator set. However, if the duration of the signal is more than 150 sec, the signal will be transmitted to initiate the switching sequence.

Alternator supply/ incoming supply change-over timer
It is essential that the supply be disconnected from the load before the incoming supply is reconnected to the load. This will be software generator settable in the controller with a minimum of 5 seconds and maximum of 20 seconds.
On receipt of the switching signal, the alternator supply will be disconnected from the load and timer started. After 5 sec, the incoming supply will be reconnected to the load.

Engine cooling-off timer
After the load has been transferred to the incoming supply the engine will run without load for a period to cool off and then stop.
A timer, software adjustable in the controller from 5 to 10 min is required.

Repeat- start control
A repeat- start control is required in the controller software adjustable so that in the event of the engine falling to start on the first start attempt, the starter motor will be released and repeat the start attempt.
The repeat-start attempt will be repeated 3 times.
The duration of each start attempt will be 6 sec with a period of 15 sec between successive start attempts.
Should the engine fail to start after the third start attempt, the controller will transmit a signal for alarm purposes.

In addition to the requirement for the switchboard instruments listed elsewhere in this document metering will also form part of the modular generator set controller and must be accessible on the software.

The modular generator set controller shall display the following alarm/status indications:

- High engine temperature.
- Low Oil pressure
- High/low alternator output voltage
- Over and under speed (frequency)
- Low water level
- Emergency stop activated
- Mains fail
- Battery charger fail
- Dummy load in operation (When provided)
- Unit not in Auto
- Engine running
- Low fuel alarm
- Engine start failure

Conditions one to six above will stop the engine.

The Contractor shall provide a remote alarm mimic panel and the associated control wiring for the set. The panel shall be installed in the duty/security room at the entrance to the building approximately 70m from the generator set position.

The mimic panels must fit into furniture and blend with the design. Before manufacture, the Contractor shall submit and obtain the approval, from the Engineer, for the mimic panel.

The remote alarm must have potential free relay contacts which shall indicate the following on each set:
1) Mains on/off
2) Alternator running
3) Common fault alarm
4) Buzzer which can only be reset at the generator panel
5) Fuel low

The cable between the remote alarms is to be a signal cable with a screen and this option must be able to operate from a 12 / 24 V dc supply so that it can be powered from the generator set batteries.

A facility to originate a fault message should a warning or shutdown fault occur.

A facility to allow the mode of the control system to be changed to any of the four modes to allow the set to be run from a remote location.

A facility to originate a call to the control cellular and to transfer a fault message should a warning or shutdown fault occur. The alarm conditions above from the controller will be extended to four relays with a make and break contact and terminal strip to allow for remote monitoring of the following alarms:

- Mains fail
- Standby run
- Standby fail
- Low Fuel

A remote start facility must be supplied, software controllable in the controller.

All events relating to the status of the generator set shall be logged with date and time in a non-volatile memory (which can retain information for a period of 6 months in the absence of power to the controller) and the user shall be able to contain a hard copy on site.

The modular generator set controller system must be able to operate with a minimum DC supply voltage of 4 volts (without making use of either an internal or an external auxiliary battery) to allow cranking and starting under conditions of low battery capacity. Control cables between the set and the control panel shall be fitted with sockets for ease of undoing in the event the modular generator set controller has to be removed.

2.3.5. **Manual Starting**

Each switchboard shall be equipped with two pushbuttons marked “START” and “STOP” for manual starting and stopping of the set.

2.3.6. **Battery Charging Equipment**

Each switchboard shall be equipped with battery charging equipment.

The charger shall operate automatically in accordance with the state of the battery and shall generally consist of an air-cooled transformer, a full wave solid state rectifier, and the necessary automatic control equipment of the constant voltage system.

The charger must be fed from the mains. An engine driven alternator must be provided for charging the battery while the set is operational. Failure of this alternator must also activate the battery charger failure circuit.

The starter battery voltage will be software monitored by the modular generator set controller. The voltage will be digitally displayed.

2.3.7. **Switchboard Instruments**

Each generating set shall have a switchboard equipped as follows:

a) One flush square dial voltmeter, reading the alternator voltage, scaled as follows:

(i) 0-300V for single phase generators.
(ii) 0-500V for three phase generator. In this case a six position and off selector switch must be installed for reading all phase and phase to neutral voltages.

b) A flush square dial combination maximum demand and instantaneous ampere meter for each phase, with resettable pointer suitably scaled 20% higher than the alternator rating. A red arc stripe above scale markings from 0-20A and a red radial line through the scale at full-load current, shall be provided. This instruments shall be supplied complete with the necessary current transformer.
c) One flush square dial vibrating type frequency meter, indicating the alternator frequency.
d) A six digit running hour meter with digital counter, reading the number of hours the plant has been operating. The smallest figure on this meter must read 1/10 hour.
e) Fuses or m.c.b.'s for the potential voltage circuits of the meters.
f) One flush square dial ampere meter suitably scaled for the battery charging current.
g) One flush square dial voltmeter with a spring loaded pushbutton or switch for the battery voltage.

2.3.8. **Marking**

All labels, markings or instructions on the switchgear shall be in English.

2.3.9. **Earthing**

An earth bar must be fitted in the switchboard, to which all non-current carrying metal parts shall be bonded. The neutral point of the alternator must be solidly connected this bar by means of a removable link labelled "EARTH". Suitable terminals must be provided on the earth bar for connection of up to three earth conductors, which will be supplied and installed by others.

2.3.10. **Operation Selector Switch**

A four position selector switch must be provided on the switchboard marked "AUTO", "MANUAL", "and TEST" and "OFF".

With the selector on "AUTO", the set shall automatically start and stop, according to the mains supply being available or not.

With the selector on "TEST", it shall only be possible to start and stop the set with the pushbuttons, but the running set shall not be switched to the load.

With the selector on "MANUAL", the set must take the load when started with the pushbutton, but it must not be possible to switch the set on to the mains, or the mains onto the running set.

With the selector on "OFF", the set shall be completely disconnected from the automatic controls, for cleaning and maintenance of the engine.

2.3.11. **Automatic Change-over System**

A fully automatic change-over system must be provided to isolate the mains supply and connect the standby set to the outgoing feeder in case of a mains failure and reverse this procedure on return of the mains.
The contactors for this system must be electrically and mechanically interlocked.

2.3.12. **By-pass Switch and Main Isolator**

The switchboard shall be equipped with an on-load isolator to isolate the mains and a manually operated on-load 4 pole 4 position by-pass switch, which shall switch the connected loads as follows:

NORMAL: will allow for the normal connection i.e. connects the incoming mains to the
Automatic control gear or directly to the outgoing feeder.
In the GEN BY-PASS position, the switch will disconnect the automatic changeover control gear, and will connect the municipal mains directly the essential supply busbar which will allow for the maintenance of either or both the generator and the automatic changeover equipment.
MAINS BY-PASS switching position would allow the generator to be connected directly to the essential supply busbar. This is when there is a problem with the automatic changeover equipment and there is no municipal power available.
The final position is an OFF position which will remove all power downstream of this switch.

It is required that this by-pass switch and mains isolator be mounted away from the automatic control gear, in a separate compartment, either on the side or in the lower portion of the switchboard cubicle, and that the switches are operated from the front of the compartment.
Contractor to note: The by-pass and mains isolator switch shall also break the main neutral.

2.3.13. **Start Delay**

Starting shall be automatic in event of a mains failure. A 0-15 second adjustable start delay timer shall be provided to prevent start-up on power trips or very short interruptions.

2.3.14. **Stop Delay**

A stop delay with timer is required for the set, to keep the set on load for an adjustable period of one to sixty seconds after the return of the mains supply, before changing back to the supply. An additional timer shall keep the set running for a further adjustable cooling period of 5 to 10 minutes at no-load before stopping.

2.4. Installation

Except for the supply of the incoming mains cable and outgoing feeder cables, the tenderer must include for the complete installation and wiring of the plant in running order, including the connection of the incoming cable and outgoing feeder cables.

The connecting of the cable and control cabling to the generator and the control terminals in the LV board remains the responsibility of the tenderer.

2.5. Warning Notices

Notices, in English, must be installed on the outside of the steel enclosure.

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.

The notice shall be made of a non-corrodible and non-deteriorating material, preferable plastic, and must read as follows:

DANGER: This engine will start without notice. Turn selector switch on control board to "OFF" before working on the plant.

An engraved label shall be installed next to the fuel cap that indicates the following:
- Base Tank Capacity
- Bulk Tank Capacity (if provided)
- Full load litres per hour consumption

2.6. **Construction**

The engine and alternator of the set shall be built together on a common frame, which must be mounted on a skid base on anti-vibration mountings. The set must be placed inside an IP65 canopy/container. A drip tray must be fitted under the engine. The tray must be large enough to catch a drip from any part of the engine.

The frame must be of the 'DUPLEX' type.

2.7. **Operation**

The set is required to supply the lighting and power requirements 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.

SECTION 3 – TECHNICAL SPECIFICATION

3. SECTION 3 – TECHNICAL SPECIFICATION

3.1. General

Complete Supply, safely deliver to site, installation, comprehensive commissioning, comprehensive testing, comprehensive training of client DCS operating personnel and maintain an emergency generating set at Frankfort Correctional Centre. Decommissioning, making safe and removing of old Genset from generator room and move to client storage.

This installation must comply fully with all the sections and drawings of this document. This technical specification is supplementary to the Equipment Requirements, Section 2, and must be read together where they are at variance the Technical Specification shall apply.

Supply, delivery, installation and commissioning of the complete outdoor emergency generator set inside an IP65 canopy/container on a concrete plinth as specified in this document and indicated on the drawings.

Reinforced concrete plinth to be provided as per Genset manufacturer engineering recommended drawing, unless otherwise provided by client engineering team.

The surface of the concrete plinth shall be 50mm higher than the existing ground level. The thickness and strength of the plinth shall be designed by the consulting engineer and are detailed on the drawings.

A tap to be provided to drain all the water that accumulates inside the bund wall. Final position of the tap will be determined on site. It is the engineer's responsibility to ensure plinth design complies with generator dimensions and weights. The bund wall shall contain 110% of the fuel, oil and water capacity of the generator. The bund wall shall not constrain the canopy doors from opening completely.

The contractor shall install an earthing system in the concrete plinth. The contractor shall install two (2) earth studs 1.8 meters long on opposite corners of the concrete plinth into the ground. The earth studs shall be connected by means of a 70mm2 bare copper earth wire to the main earth bar in the control panel. The earth conductor shall be connected to the earth bar, canopy, bass, skid and earth bar by means of suitably crimping lugs and brass bolts.

3.2. Site Information and Conditions

3.2.1. Location

The site as the following location:

Facility description:	Frankfort Correctional Centre
Town:	Frankfort
Province:	Free State
Address:	4 De Villiers Street.
GPS Coordinates:	27º◦ 16' 01.40"S
	28º 29' 38.52" E

The site where the generator is require is an active correctional centre bidders are required to ensure that all correctional services safety and security requirements are adhered to.

3.2.2. **Site Conditions**

The following site conditions will be applicable and equipment shall be suitably rated to develop their assigned rating and duty at these conditions.

a) Height above sea level : 1 506 Meter
b) Maximum ambient temperature : +35 °C
c) Maximum ambient humidity at lowest temperature : -10 %

The bidder is also required to correlate the abovementioned information with SAWB for latest information.

3.3. **Output and Voltage**

After the de-rating factors for the engine and generator due to site conditions have been taken into account, the set must have a site output and voltage as follows: -

No load voltage	:	400/230 Volts
Rating	:	150 kVA 3phase
Power at 0.8 power factor	:	132 kW
Frequency	:	50Hz
Fault Level	:	25KA or better

The generating set is required to feed the complete correctional facility electrical load. All the sub-DBs are connected via main DB(DB-A/AE).

3.4. **Switchboard/Control Panel Unit**

All switch- and control gear shall be rated for a fault current level of 6kA or better. The switchboard/control panel unit shall be enclosed in the IP65 canopy/container.

The bottom of the control panel shall be extended to enclose cabling from the reinforced concrete plight sleeves position to the control panel entry point. The switchboard shall comply with the following but not limited to:-

Genset mounted Panel *(With cover from sleeve to panel)*	
Power coated board finish,or better	
Make of Volt, Ampere and Frequency meters	On controller, similar or equal to
Dial size of meter	144mm X 160mm; or better
Scale range of Ammeter	400A
Scale range of Voltmeter	0-to-450V
Ration of current transformers	400/5A
Make of hour meter	On controller, or better
Range of cyclometer counter	Hours
Smallest unit shown on cyclometer counter	Hrs
Type of circuit breaker	Therma hydrolic magnetig
Control and Protection equipment mounted mount type	Removal panel type.
Control equipment	Deep Sea 7320, similar or equal to
Type of rectifier	Trigger charge
Battery charging	Automatic

3.5. **Cables**

The contractor will be responsible for all electrical cable connections associated with the complete generating set installation and shall ensure that there is no exposed cabling which may lead to been vandalised or damaged.

The following cables will be supplied, installed and terminated at the Switchboard by others. Adequate provision shall be made for the termination of these cables at the Switchboard:

- Point of supply to Genset input 95mm² 4C + 25mm² BCEW(underground)
- Genset output to main DB DB-A/AE 70mm² 4C + 25mm² BCEW(underground in UPVC sleeve)

3.6. **Engine**

A sump drainpipe must be fitted with a shut-off valve placed in a convenient position outside the base frame to facilitate drainage.

Recommended oil types must be indicated on the engine, or base frames, by means of suitable labels.

All engine instruments shall have clear markings on the faceplates, indicating the normal operating zone(s), maximum and minimum allowable values/limits and danger zone(s).The flywheel shall be covered by approved hoods. The engine shall comply with following but not limited to:-

Net output on site(KW)	128 KW, or better
Nominal speed(RPM)	1500 RPM
Phase	Three(03)
Speed control type	Digital
Frequency	50Hz
Number of Cylinders	Six (06)
Stoke per working cycle	Six (06)
Cylinder bore(mm)	108mm
Stroke(mm)	130mm
Injection system	Single injection pump
Displacement	6.25 L
Compression ration	16.0:1
Piston speed	9.97m/s
Mean effective pressure	17.1 bar
Engine dry without cooling system	526Kg

Fuel consumption of the complete genset on site of alternating output:

i. @ full load(prime power)	25.8L/H, or better
ii. 75% load (prime power)	19.3L/H, or better
iii. 50% load(prime power)	13.1L/H, or better

Capacity of fuel tank(full load for 24hrs)	190L, or better
Voltage of starting system	24V

Electric Fuel gauge fitted to tank	Mandatory
Electric fuel pump	Mandatory
Method of cooling	Radiator
Type of heater for warming cylinder heads	Water jacket heater
Method of protection against High Temperatures	Cut out switch (HT)
Method of protection against Low Temperatures	Cut out switch (LT)

Type of governor	Electronic
Type of Fuel Tank	base type tank
Speed variation	
i. Temporary	3% or better
ii. Permanent	1% or better
Recommended intervals for :-	
i. Lubricating oil change	250Hrs, or better
ii. Oil Filter element	250Hrs, or better
iii. Decarbonising	When required
Noise level at tall exhaust pipe	75dBA or better
BMEP(4 stroke) at continuous rate	1.7MPA or better
% load acceptance to BS 5514, part 4 with 10% transient speed drop	70%, or better

3.7. **Alternator**

The Alternator shall be of the low harmonic type. The alternator shall comply with

Winding connections	Star-series
Terminals	12
Poles	04
Power factor	0.8
Insulation type	12
Winding pitch	2/3
IP rating	IP23
Excitation system	self-excited via AVR
Bearing	single bearing
Coating	vacuum impregnation
Voltage	A.V.R
Coupling	Flexible dics
Anti-damp and anti corrosion treatment	compulsory
Winding temperature measuring instrument	compulsory
Nominal speed in RPM	1500RPM, or better
Terminal voltage	400/230V
De-rating for site conditions	6.4%
Efficiency @ 0.8PF	
iv. full load	93.4%, or better
v. ¾ load	93.5% or better
vi. ½ load	93.6% or better
Maximum permanent voltage variation (%)	1%, or better
Transient voltage dip on full load	4% or better
Insulation winding class	Class H
Symmetrical short circuit current @ terminal(A)	1522A

3.8. **Load Acceptance**

The generator set shall be capable of accepting 75% of the specified site electrical output 10 seconds after the starter motor is energised and the remaining 25%, 5 seconds thereafter, i.e. 100% load acceptance shall not exceed 15 seconds.

3.9. **Enclosure**

The standby set is a free standing unit and shall be mounted in an enclosure as detailed below: -

3.9.1 General

The enclosure, shall be completely vermin-proof, powder coated and shall be constructed of 3CR12 stainless steel or within 50km from the coast with grade 316 steel housing of a minimum thickness of ±1.5 mm.

The enclosure shall allow easy access to the engine, alternator, radiator filler cap and control cubicle for maintenance purposes.

The door shall be flush with the rest of the canopy and of the side opening type. A minimum of four doors are required i.e. two on either side.

The door hinges and locking bars shall be of a heavy duty type and be manufactured of 3CR12 stainless steel or within 50km from the coast with grade 316 steel and shall be fitted with a grease nipple.

The doors and panels shall be suitably braced and stiffened to ensure rigidity and to prevent bending and warping.

Suitable door restraints shall be fitted to all the doors, enclosure including the control panel to prevent wind damage. The restraint shall consist of a steel rod in a steel groove or slide with a spring loaded catch, which is to be manually reset to close the door.

No flexible restraints will be accepted.

The diesel fuel level indicator and alternator rating plate shall be clearly visible with the doors open.

Unless specified the silencers shall be mounted within the enclosure.

Perforated sheeting shall be fitted over all the insulating material inside the canopy of all soundproof sets.

Rubber seals on doors shall be equal to or similar to rubber pinch weld, wind lace.

9.2 Design

The enclosure shall be designed to be weather-proof and sound-proofing as specified. Rivets or self-tapping screws will under no circumstances be allowed for fixing the various sections of the enclosure. Only cadmium coated nuts and bolts are acceptable.

9.3 Roof

The roof of the enclosure shall be constructed for proper drainage of water as per the drawing.

9.4 Lamp fitting

A lamp fitting and it's associated on/off door switch shall be provided inside the enclosure for illumination of the control panel. The power for the lamp shall be obtained from the starter battery.

9.5 Sound-proofing

The sound-proofing on canopy engine sets shall be such that the maximum noise level generated by the set under any load condition shall not exceed 65 dB measured in any direction at a distance of 5m from the centre of the set with the doors closed.
The supply and discharge air paths will require separate attenuators on soundproof sets.

9.6 Padlock and keys

The contractor shall supply recessed vandalproof locking mechanism suitable for correctional facility and keys for all the doors of the enclosure. The locking mechanism shall be stainless steel type.

Suitable brass metal plates shall be installed behind each lock for the protection of the enclosure against scratching or damaging, where the locks are hanging.

3.10. **Alarms**

The successful tenderer must pay particular attention to the requirements of the alarms as described in the Equipment Requirements, Section 2.

One alarm hooter and red light shall be supplied and installed on the outside of the generator container in a position as indicated by the client engineer representative or Department's Representative this shall be supplied cost complete with Genset

The hooter shall consist of an electronic unit similar and equal to a "Klaxon" - type SY2/725 hooter with a continuously rated output and 110 dB at a distance of 2 metres, and shall be IP55 weatherproof rated.

The warning light shall consist of a 40W flashing red light, which shall be mounted on a galvanised steel frame together with the hooter.

The hooter and light shall be switched on or off simultaneously after initiation or cancellation of an alarm condition. The supply and installation of the wiring between the control board and the alarm unit forms part of this contract.

The successful tenderer must ensure that the hooter control circuit resets automatically after cancellation due to a low fuel condition or battery charger failure, but the visible fault indication must remain, i.e. should the operator continue to run the set, the hooter must sound, should any other condition develop.

A remote alarm panel shall be supplied and installed by the contractor in the control room. This shall be of surface mounting, enamelled sheet metal (colour to approval), minimum depth construction, and shall incorporate a flashing red pilot alarm light, adjustable electronic sounder, and a silence push button. The silence button shall not switch off the pilot light - this shall only be switched off when the alarm is reset at the Generator Panel.

A 2,5mm² x 4-core PVC SWA PVC cable will be supplied, installed and terminated by others between the Generator Panel and the Charge Office. The Contractor shall connect this cable at both ends and shall supply and install all switch gear relays, etc. to ensure satisfactory operation of the Remote Alarm Panel.

3.11. **Remote Control Generator Switch**

A Remote Control Generator "ON/OFF/AUTO" switch will be supplied and installed by others in the control room, and a 2,5mm² x 4-core PVC SWA PVC cable will be supplied and installed by others between the control room and the Generator Panel.

The contractor shall connect this cable at both ends, and shall supply and install all switch gear, relays, etc. to ensure satisfactory operation of the remote control switch.

3.12. **Fuel Drip Tray**

A drip tray approximately 100mm deep shall be mounted below the generator and must be large enough to collect any fuel that drips from the generator fuel accessories. The drip tray shall be manufactured from black mild steel. The thickness of the drip tray sheet steel shall not be less than 2mm.

3.13. **Completion Time**

The Generator Set is required to be commissioned in conjunction with the building contract.

3.14. **Inform**

The successful tenderer shall inform the Engineer when the set is ready for installation for engineer to conduct pre-delivery manufacturing inspection.

3.15. **Fuel Supply Tank**

The fuel tank shall be an integral part of the base frame of the generator set. The tank shall have sufficient capacity to run the engine on full load for a period of 24 hours. The base tank shall be an open channel self-bund walled type that shall be of sufficient capacity to contain a spillage equivalent to 110% in volume of the base tank. The containment tank shall be manufactured from black mild steel with a thickness of not less than 2mm.

A float level alarm connected to the generator controller shall be incorporated into the bund area located such that the alarm will be activated when 50% of the volume of the bund area has been reached in the event of any diesel fuel leakage. The genset must be at 100% full tank at practical completion sign off it remains the successful contractor responsibility to show the fuel tank level and provide relevant supporting documents of diesel utilised. The full tank cost shall be priced accordingly in the BOQ.

SECTION 4 – SCHEDULES OF TECHNICAL INFORMATION
(TO BE FULLY COMPLETED BY TENDERER)

4. SECTION 4 – SCHEDULES OF TECHNICAL INFORMATION

This schedule shall be completed in detail by the bidder and shall attach all the supporting documentations, failure to complete this section by the bidder shall render your submission technically none responsive and shall be disqualified accordingly.

4.1. Engine

NO	ITEM	REMARKS
1.	Manufacturer's Name	
2.	Country of Origin	
3.	Manufacturer's model No. and year of manufacture	
4.	Continuous sea level rating after allowing for ancillary equipment: a) In b.h.p. b) In kW	
5.	Percentage de-rating for site conditions, in accordance with SANS 8528 a) For altitude b) For temperature c) For humidity d) Total de-rating	
6.	Net output on site in kW	
7.	Nominal speed in r.p.m.	
8.	Number of cylinders	
9.	Strokes per working cycle	
10.	Stroke in mm	
11.	Cylinder bore in mm	
12.	Swept volume in cm^3	
13.	Mean piston speed in m/min	
14.	Compression ratio	
15.	Cyclic irregularity	
16.	Fuel consumption of the complete generating set on site in l/h of alternator output at: a) Full load b) ¾ load c) ½ load NOTE:	

NO	ITEM	REMARKS
	A tolerance of 5% shall be allowed above the stated value of fuel consumption.	
17.	Make of fuel injection system.	
18.	Capacity of fuel tank in litres	
19.	Is gauge glass fitted to tank?	
20.	Is electric pump for filling the fuel tank included?	
21.	Method of starting	
22.	Voltage of starting system	
23.	Method of cooling	
24.	Type of radiator if water-cooled	
25.	Type of heater for warming cylinder heads	
26.	Capacity of heater in kW	
27.	Method of protection against high temperature	
28.	Method of protection against low oil pressure	
29.	Type of governor	
30.	Speed variation in % a. Temporary b. Permanent	
31.	Minimum time required for as assumption of full load in seconds	
32.	Recommended interval in running hours for: a. Lubricating oil change b. Oil filter element change c. Decarbonising	
33.	Type of base	
34.	Can plant be placed on solid concrete floor?	
35.	Are all accessories and ducts included?	
36.	Is engine naturally aspirated?	
37.	Are performance curves attached?	
38.	Diameter of exhaust pipe	
39.	Noise level in plant room in dBA	N/A
40.	Noise level at tail of exhaust pipe in dBA	
41.	BMEP (4 stroke) at continuous rating (kPa)	
42.	% Load acceptance to SANS 8528, with 10% transient speed drop	

4.2. **Alternator**

NO	ITEM	REMARKS
1.	Maker's name and model no.	
2.	Country of Origin and year of manufacture	
3.	Type of enclosure	
4.	Nominal speed in r.p.m.	
5.	Number of bearings	
6.	Terminal voltage	
7.	Sea level rating kVA at 0,8 power factor	
8.	De-rating for site conditions	
9.	Input required in kW	
10.	Method of excitation	
11.	Efficiency at 0,8 power factor and: a) Full load b) ¾ load c) ½ load	
12.	Maximum permanent voltage variation in %	
13.	Transient voltage dip on full load	
14.	Voltage recovery on full load application in milli-seconds	
15.	Is alternator brushless?	
16.	Class of insulation of windings	
17.	Is alternator tropicalised?	
18.	Symmetrical short circuit current at terminals n Ampere	
19.	Type of Coupling	

4.3. **Switchboard**

NO	ITEM	REMARKS
1.	Maker's Name	
2.	Country of Origin	
3.	Is board floor mounted?	
4.	Finish of board	
5.	Make of volt, amp, and frequency meters	
6.	Dial size of meters in mm	
7.	Scale range of voltmeter	
8.	Scale range of ammeters	
9.	Ration of current transformers	
10.	Make of hour meter	
11.	Range of cyclometer counter	
12.	Smallest unit shown on counter (Item 11)	
13.	Make of circuit breaker	
14.	Type of circuit breaker	
15.	Rating of circuit breaker in Amp and fault level in kA	
16.	Setting range of overload trips	
17.	Setting range of instantaneous trips	
18.	Make of change-over equipment	
19.	Make of voltage relay	
20.	Is control and protection equipment mounted on a small removable panel?	
21.	Type of control equipment	
22.	Make of mains isolator	
23.	Type of indicators for protective devices	
24.	Make of rectifier	
25.	Type of rectifier	
26.	Is battery charging	
27.	Are volt- and ammeters provided for charging circuit?	
28.	Is the alarm hooter of the continuous duty type?	
29.	Rating in Amps of: a. Change-over equipment b. Mains on load isolator c. By-pass switch	

NO	ITEM	REMARKS
	d. Circuit breaker to outgoing feed	
30.	Is manufacture of switchboard/control panel to be sub-let?	
31.	If yes, state name and address of specialist manufacturer	

4.4. Battery

NO	ITEM	REMARKS
1.	Maker's Name	
2.	Country of Origin	
3.	Type of battery	
4.	Voltage of battery	
5.	Number of cells	
6.	Capacity in cold crank amp	

4.5. Dimensions

NO	ITEM	REMARKS
1.	Overall dimensions of set in mm	
2.	Overall mass	
3.	Is the canopy/container adequate for the installation of the set, switch board and fuel tank	

4.6. Deviation from the Specification as an Alternative (State Briefly)

NO	DESCRIPTION

4.7. **Spare Parts and Maintenance Facilities**

NO	ITEM	REMARKS
1	Approximate value of spares carried in stock for this particular diesel engine and alternator	
2	Where are these spares held in stock	
3	What facilities exist for the servicing of the equipment offered	
4	Where are these facilities available	

PART C 3.2: SHEQ SPECIFICATION

Occupational health and safety specification for construction works

1 Scope

This health and safety specification in respect if an engineering and construction works contract:

a) provides the overarching framework within which the Contractor is required to demonstrate compliance with certain requirements for occupation health and safety established by the Occupational Health and Safety Act of 1993;

b) establishes the manner in which the Contractor is to manage the risk of health and safety incidents in the execution of the contract; and

c) establishes the manner in which the Employer's health and safety agent will interact with the Contractor.

Note: 1) This specification establishes general requirements to enable the Employer and the Contractor to satisfy the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations, 2003.

2) The Construction Regulations, 2003, require an Employer to stop any Contractor from executing construction work which is not in accordance with the Contractor's health and safety plan for the site or which poses to be a threat to the health and safety of persons.

3) This specification establishes generic health and safety requirements Site specific requirements for health and safety are stated in the scope of work associated with a contract.

2 Interpretation

2.1 The Act and its associated regulations shall have precedence in the interpretation of any ambiguity or inconsistency between it and this specification.

2.2 Compliance with the requirements of this specification does not necessarily result in compliance with the provisions of the Act.

3 Requirements

3.1 General requirement

The Contractor shall:

a) create and maintain a safe and healthy work environment,

b) execute the works in a manner that complies with all the requirements of the Act and all its associated regulations, and in so doing, minimize the risk of incidents occurring; and

c) respond to the notices issued by the Employer's Health and Safety Agent as follows:

1) Improvement Notice: improve health and safety performance over time so that repeat notices are not issued;

2) Contravention Notice: rectify contravention as soon as possible;

3) Prohibition Notice: terminate affected activities with immediate effect and only recommence activities when it is safe to do so.

3.2 Administration

3.2.1 Notification of intention to commence construction work

3.2.1.1 The Contractor shall notify the Provincial Director of Labour in writing using a form similar to that contained in Annexure A of the Construction Regulations issued in terms of the Act before construction work commences and retain a copy of such notification in the health and safety file where such work:

a) involves the demolition of a structure exceeding a height of 3m;

b) involves the use of explosives to perform construction work;

c) involves the dismantling of fixed plant at a height greater than 3m;

d) exceeds 30 days or will involve more than 300 person days of construction work; and

includes:

i) excavation work deeper than 1m; or

ii) working at a height greater than 3 m above ground or a landing.

3.2.1.2 The Contractor shall ensure that no work commences on an electrical installation which requires a new supply or an increase in electricity supply before the person who supplies or contracts or agrees to supply electricity to that electrical installation has been notified of such work.

3.2.1.3 The Contractor shall ensure that no asbestos work is carried out before the Provincial Director of the Department of Labour has been notified in writing.

3.2.2 Copy of the Act

The Contractor shall ensure that a copy of the Act and relevant regulations is available on site for inspection by any person engaged in any activity on the site.

3.2.3 Good standing with the compensation fund or a licensed compensation insurer

The Contractor shall before commencing with any works on the site provide the Employer's Health and Safety Representative with proof of good standing with the compensation fund or with a licensed compensation insurer.

3.2.4 Emergency procedures

3.2.4.1 The Contractor shall submit for acceptance to the Employer's Health and Safety Agent an emergency procedure which include but are not limited to fire, spills, accidents to employees, exposure to hazardous substances, which:

a) identifies the key personnel who are to be notified of any emergency;

b) sets out details including contact particulars of available emergency services; and

c) the actions or steps which are to be taken during an emergency.

3.2.4.2 The Contractor shall within 24 hours of an emergency taking place notify the Employer's Health and Safety Agent in writing of the emergency and briefly outline what happened and how it was dealt with.

3.2.5 Health and safety file

3.2.5.1 The Contractor shall maintain on site a health and safety file which contains copies of the following, as relevant:

a) documents required prior to commencing with physical construction activities

1) the Contractor's health and safety policy, signed by the chief executive officer, which outlines the Contractor's objectives and how they will be achieved and implemented by the Contractor;

2) the notification made to the Provincial Director of Labour, and if relevant, the notification of the person who supplies or contracts or agrees to supply electricity to that electrical installation;

3) the letters of appointment, as relevant, of the construction supervisor for the site in respect of construction works covered by the Construction Regulations and the registered person responsible for the electrical installation covered by the Electrical Installations Regulations;

4) a copy of the certificate of registration of the registered person responsible for the electrical installation covered by the Electrical Installations Regulations;

5) the approval of the design of the part of an electrical installation which has a voltage in excess of 1 kV by a person deemed competent in terms of the Electrical Installations Regulations;

6) proof of registration of the electrical contractor who undertakes the electrical installation in terms of the Electrical Installations Regulations;

7) the preliminary hazard identification undertaken by a competent person;

8) the organogram which outlines the roles and responsibilities of the construction

supervisor's assistants and safety officers; and

9) the contractor's health and safety plan;

10) the emergency procedures;

11) the procedure for the replacement of lost, stolen, worn or damage personal protective clothing and

12) proof that the contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer;

b) documents required after construction activities have commenced

1) the letters of appointments, if relevant, of:

i) persons who are required to assist the construction supervisor;

ii) safety officers;

iii) health and safety representatives;

iv) replacement construction supervisor, and

v) assistants of construction supervisor.

2) any revisions to the organogram which outlines the roles and responsibilities of the

construction supervisor's assistants and safety officers;

3) each and every subcontract agreement;

4) proof that every subcontractor is registered and in good standing with the compensation fund or with a licensed compensation insurer;

5) proof of all subcontractor's induction training whenever it is conducted;

6) copies of the minutes of the Contractor's subcontractor's health and safety meetings;

7) copies of each of the Contractor's subcontractors' health and safety policy, signed by the chief executive officer, which outlines the Contractor's objectives and how they will be achieved and implemented by the Contractor;

8) the health and safety plans of all the Contractor's subcontractors who are required to provide such plans;

9) a comprehensive and updated list of all the subcontractors employed on site by the contractor, indicating the type of work being performed by such sub-contractors;

10) the outcomes of the monthly audits for compliance with the approved health and safety plan of each and every sub-contractor working on the site;

11) any report made to an inspector by the health and safety committee;

12) the minutes of all health and safety meetings and any recommendations made to the Contractor by the health and safety committee;

13) the findings of all audit reports made regarding the implementation of the

Contractor's or a subcontractor's health and safety plan;

14) the inputs of the safety officer, if any, into the health and safety plan;

15) details of induction training conducted whenever it is conducted including the list of attendees;

16) proof of the following where suspended platforms are used:

i) a certificate of system design issued by a professional engineer, professional certificated engineer or a professional engineering technologist;

ii) proof of competency of erectors;

iii) proof of compliance of operational design calculations with requirements of the system design certificate;

iv) proof of performance test results;

v) sketches indicating the completed system with the operational loading capacity of the platform;

vi) procedures for and records of inspections having been carried out;

vii) procedures for and records of maintenance work having been carried out;

viii) proof that the prescribed documentation has been forwarded to the provincial director;

17) letters of appointments for competent persons to supervise the activities which law requires to be so supervised;

18) a copy of risk assessments made by competent persons;

19) records of the register of inspections made by a competent person immediately before and during the placement of concrete or any other load on formwork;

20) the names of the first aiders on site and copies of the first aid certificates of competency;

21) the names of the persons the persons who are in possession of valid certificate of competency in first aid and copies of such certificates;

22) details of all incidents together with the Contractor's report on such incident; and

23) the record of inspections carried out by the designers of structures to ensure compliance with designs.

3.2.5.2 The health and safety file shall be made available for inspection by any inspector, subcontractor, the Project Manager, the Employer's Health and Safety Agent or employee of the Contractor upon the request of such persons.

3.2.5.3 The Contractor shall hand over the health and safety file to the Employer's Health and

Safety Agent upon completion of the contract and if relevant, a certificate of compliance accompanied by a test report for the electrical installation in accordance with the provisions of the Electrical Installation Regulations.

3.2.6 Health and safety committee

3.2.6.1 The Contractor shall convene health and safety meetings whenever more than two health and safety representatives have been appointed for the site. These meetings shall be attended by all health and safety representatives and persons nominated by the Contractor. Such meetings shall be convened at least once every month to:

a) make recommendations to the Contractor regarding any matter affecting the health or safety of persons on the site; and

b) discuss any incident on the site in which or in consequence of which any person was injured, became ill or died.

3.2.6.2 The Contractor shall consult with the health and safety committee on the development, monitoring and review of the risk assessment.

3.2.6.3 The Contractor shall ensure that minutes of the health and safety committee meetings are kept.

3.2.6.4 The Employer's Health and Safety Agent shall be invited to attend such meetings as an observer.

3.2.7 Inspections, formal enquires and incidents

3.2.7.1 The Contractor shall inform the relevant safety representative:

a) beforehand of inspections, investigations or formal inquiries of which he has been notified by an inspector; and

b) as soon as reasonably practicable of the occurrence of an incident on the site.

3.2.7.2 The Contractor shall record all incidents and notify the Employer's Health and Safety Agent of any incident, except in the case of a traffic accident on a public road, as soon as possible after it has occurred and report such incidence to an inspector.

3.2.7.3 The Contractor shall investigate all incidents and issue the Employer's Health and Safety Agent with copies of such investigations.

3.2.8 Personal protective equipment and clothing

The Contractor shall ensure that:

a) all workers are issued with the necessary personal protective clothing;

b) all workers are identifiable at all times by having the company for which they work for

printed on the back or front of their overalls; and

c) clear procedures are in place for the replacement of lost, stolen, worn or damage personal protective clothing.

3.3 Appointments

3.3.1 Health and safety representatives

3.3.1.1 The Contractor shall appoint in writing one health and safety representative for every 50

employees working on the site, whenever there are more than 20 employees on the site, to:

a) review the effectiveness of health and safety measures;

b) identify potential hazards and potential major incidents;

c) in collaboration with his employer, examine the causes of incidents;

d) investigate complaints by any employee of the Contractor relating to that employee's health

or safety on the site;

e) make representations to the Contractor on matters arising from a), b), c) or d) or on general

matters affecting the health or safety of the employees at the workplace;

g) inspect the site with a view to, the health and safety of employees, at regular intervals;

h) participate in consultations with inspectors at the workplace and accompany inspectors on inspections of the workplace; and

i) participate in any internal health or safety audit.

3.3.1.2 The Contractor shall provide the health and safety representatives with the necessary assistance, facilities and training to carry out the functions established in 3.3.1

3.3.2 Appointment of construction supervisor and safety officers

3.3.2.1 The Contractor shall, prior to commencing the work, appoint a full-time competent employee in writing as the construction supervisor for the site, with the duty of supervising the performance of the work falling within the scope of the contract and may appoint one or more competent employees to assist the appointed construction supervisor.

3.3.2.2 The Contractor may, having considered the size of the project, the degree of dangers

likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part time construction safety officer in writing, who has in the Contractor's opinion the necessary competencies and resources, to assist the Contractor in the control of all safety related aspects on the site.

3.3.2.3 The Contractor shall compile an maintain an organogram which outlines the roles and

responsibilities of the construction supervisor's assistants and safety officers.

3.3.3 Competent persons

3.3.3.1 The Contractor shall appoint in writing competent persons to supervise or inspect, as

relevant, any of the following:

a) . formwork and support work operations;

b) excavation work;

c) demolition work;

d) scaffolding work operations;

e) suspended platform work operations;

f) material hoists;

g) operation of batch plants;

h) explosive power tools;

i) vehicles and mobile equipment;

j) fire equipment; and

g) the stacking and storage of articles on the site.

3.3.3.2 The Contractor shall appoint in writing competent persons to:

a) induct employees in health and safety; and

b) prepare a fall protection plan.

3.4 Employer's health and safety agent

3.4.1 The Employer's Health and Safety Agent shall:

a) audit the Contractor's compliance with the requirements of this specification prior to the commencement of any physical construction activities on the site;

b) accept or reject all safety plans, giving reasons for rejecting such plans;

c) monitor the effective implementation of all safety plans;

d) conduct periodic and random audits on the health and safety file to establish compliance with the requirements of this specification;

e) visit the site at regular intervals to conduct site inspections, and based upon such visits issue, wherever necessary, Improvement Notices, Contravention Notices and Prohibition Notices, to the Contractor or any of the Contractor's subcontractors with a copy to the Project Manager and, where relevant, to the Contractor.

3.4.2 The Contractor shall invite the Employer's Health and Safety Agent to audit compliance with the requirements of this specification before commencing with any physical construction activity on the site.

3.5 Creating and maintaining a safe and healthy work environment

3.5.1 General

3.5.1.1 The Contractor shall with respect to the site and the construction works that are contemplated:

a) cause a preliminary hazard identification to be performed by a competent person before commencing any physical construction activity;

b) evaluate the risks associated with such work constituting a hazard to the health and safety of such employees and the steps that need to be taken to comply with the Act; and

c) as far as is reasonably practicable, prevent the exposure of such employees to the hazards concerned or, where prevention is not reasonably practicable, minimize such exposure.

3.5.1.2 The Contractor shall ensure that:

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

b) no structure or part of a structure is loaded in a manner which would render it unsafe; and

c) account of information, if any, provided by the designer of the structure is considered in the risk assessment;

Note: The information provided by the designer should outline known or anticipated dangers or hazards relating to the works and make available all information required for the safe execution of the work. It should

provide as relevant, geotechnical information (or refer to reports provided in the site information), the loading the structure is designed to withstand, the methods and sequence of construction.

3.5.1.3 The Contractor shall carry out regular inspections and audits to ensure that the works are

being performed in accordance with the requirements of this specification.

3.5.2 Risk assessment

3.5.2.1 The Contractor shall before the commencement of any work on site and during construction work, cause a risk assessment to be performed by a competent person appointed in writing. Such an assessment shall as a minimum:

a) identify the risks and hazards to which persons may be exposed to;

b) analyse and evaluate the identified risks and hazards;

c) document a plan of safe work procedures, including the use of any personal protective equipment or clothing and the undertaking of periodic “toolbox talks” or inductions before undertaking hazardous work, to mitigate, reduce or control the risks and hazards that have been identified;

d) provide a monitoring plan; and

e) provide a review plan.

Note: A risk assessment is an important step in protecting workers as well as complying with the law. It helps to focus on the risks that really matter in a particular workplace – the ones with the potential to cause real harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures. The following four steps are recommended:

1) **Identify the hazards** by looking at what could reasonably be expected to cause harm, ask employees or their representatives what they think, obtain advice from trade associations or publications on health and safety, check manufacturer’s instructions or data sheets for chemicals and equipment as they can be very helpful in spelling out the hazards and putting them in their true perspective, review accident and ill-health records, think about long-term hazards to health (eg high levels of noise or exposure to harmful substances) as well as safety hazards etc.

2) **Identify who may be harmed and how** by identifying how groups of people might be harmed i.e. what type of injury or ill health might occur.

3) **Evaluate the risks and decide on precautions** by doing everything ‘reasonably practicable’ to protect people from harm i.e. by looking at how things are done, what controls are in place and how the work is organised and comparing this against good practice to see if more can be done to bring practices up to standard. Consider if the hazard can be got rid of all together, and if not, how can the risks be controlled so that harm is unlikely, e.g. try a less risky option (eg switch to using a less hazardous chemical); prevent access to the hazard (eg by guarding); organise work to reduce exposure to the hazard (eg put barriers between pedestrians and traffic); issue personal protective equipment (eg clothing, footwear, goggles etc); and provide welfare facilities (eg first aid and washing facilities for removal of contamination).

4) **Record the findings** by writing down the findings of the risk assessment.

3.5.2.2 The Contractor shall ensure that as far as is reasonably practicable, ergonomic related hazards are analysed, evaluated and addressed in the risk assessment.

3.5.2.3 Notwithstanding the provisions of the fall protection plan, the Contractor shall ensure that:

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

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

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

d) fall prevention and fall arrest equipment is:

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

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

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

f) suitable and sufficient steps are taken to ensure, as far as is reasonably practicable, that in

the event of a fall by any person, the fall arrest equipment or the surrounding environment does not cause injury to the person.

3.5.2.4 Where roof work is being performed on a construction site, the Contractor shall ensure that it is indicated in the fall protection plan that:

a) the roof work has been properly planned;

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

c) no employees are permitted to work on roofs during inclement weather conditions or if

weather conditions are a hazard to the health and safety of the employees;

d) prominent warning notices are to be placed where all covers to openings are not of

sufficient strength to withstand any imposed loads and where fragile material exists;

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

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

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

3.5.3 Health and safety plans

3.5.3.1 The Contractor shall prior to commencing the works to which this specification applies, submit to the Employer's Health and Safety Agent for approval a suitable and sufficiently documented health and safety plan, based on this specification and the risk assessment that is conducted.

b) an outline of the manner in which the Contractor intends complying with the requirements of this specification.

3.5.3.3 The Contractor shall discuss the submitted health and safety plan with the Employer's Health and Safety Agent, modify such plan in the light of the discussions and resubmit the modified plan for approval.

3.5.3.4 The Contractor shall apply the approved health and safety plan from the date of its

commencement and for the duration of the works to which this specification applies.

3.5.3.5 The Contractor shall conduct periodic audits for compliance with the approved health and

safety plan at intervals agreed upon with the Employer's Health and Safety Agent, but at least

once every month.

3.5.3.5 The Contractor shall update the health and safety plan whenever changes to the works

are brought about.

3.5.4 Fall protection plan

3.5.4.1 The Contractor shall require a competent person to prepare a fall protection plan in

compliance with the requirements of the Construction Regulations.

3.5.4.2 The Contractor shall ensure that the construction supervisor is in possession of the most

recently updated version of the fall protection plan.

3.5.5 Responsibilities towards employees and visitors

3.5.5.1 The Contractor shall as far as is reasonably practicable, cause every employee to be made conversant with the hazards to his health and safety attached to any work which he has to perform, any article or substance which he has to produce, process, use, handle, store or transport and any plant or machinery which he is required or permitted to use, as well as with the precautionary measures which should be taken and observed with respect to those hazards or safe work procedures.

3.5.5.2 The Contractor shall ensure that all employees under his or her control are:

a) informed, instructed and trained by a competent person regarding any hazard and the

related work procedures before any work commences, and thereafter at such times as may

be determined in the risk assessment; and

b) issued with proof of health and safety induction training issued by a competent person and

carry proof of such induction when working on site.

3.5.5.3 The Contractor shall cause a record of training to be kept which indicates the names, identity numbers and job description of all those who attended such training.

3.5.5.4 The Contractor shall not allow or permit any employee to enter the site, unless such person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

3.5.5.5 The Contractor shall ensure that each visitor to a construction site, save where such

visitor only visits the site office and is not in direct contact with the construction work activities:

a) undergoes health and safety instruction pertaining to the hazards prevalent on the site; and

b) is provided with the necessary personal protective equipment.

3.5.5.6 The Contractor shall provide suitable on-site signage to alert workers and visitors to

health and safety requirements. Such signage shall include but not be limited to:

a) unauthorized entrance prohibited;

b) signage to indicate what personal protective equipment is to be worn; and

c) activity related signs.

3.5.5.7 The Contractor shall not permit any person who is or who appears to be under the

influence of intoxicating liquor or drugs, to enter or remain at a workplace.

3.5.6 Subcontractors

3.5.6.1 The Contractor may only subcontract work in terms of a written subcontract and shall only appoint a subcontractor should he be reasonably satisfied that such a subcontractor has the necessary competencies and resources to safely perform the work falling within the scope of the contract. Such a subcontract shall require that the subcontractor to:

a) co-operate with the Contractor as far as is necessary to enable both the Contractor and sub-contractor to comply with the provisions of the Act; and

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

3.5.6.2 The Contractor shall provide any sub-contractor who is submitting a tender or appointed to perform a sub-contract falling within the scope of the contract, with the relevant sections of this specification and any work specific information which might be pertinent to the sub-contract.

3.5.6.3 The Contractor shall take reasonable steps as are necessary to ensure:

a) co-operation between all sub-contractors to enable each of those sub-contractors to comply with the requirements of the Act and associated regulations; and

b) that each sub-contractor's health and safety plan is implemented.

3.5.6.4 The Contractor shall conduct periodic audits for compliance with the approved health and safety plan of each and every sub-contractor working on the site at intervals agreed upon with such subcontractors, but at least once per month.

3.5.6.5 The Contractor shall stop any subcontractor from executing construction work which is not in accordance with the Contractor's or subcontractor's health and safety plan for the site or which poses a threat to the health and safety of persons.

3.5.6.6 The Contractor shall ensure that where changes to the works occur, sufficient health and safety information and appropriate resources are made available to subcontractor to execute the work safely.

3.5.6.7 The Contractor shall ensure that:

a) every subcontractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing on site;

b) potential subcontractors submitting tenders have made provision for the cost of health and safety measures during the construction process; and

c) every subcontractor has in place a documented health and safety plan prior to

commencing any work on site which falls within the scope of the contract.

3.5.6.8 The contractor shall receive, discuss and approve health and safety plans submitted by subcontractors.

3.5.6.9 The contractor shall ensure that all subcontractors are informed regarding any hazard as stipulated in the risk assessment before any work commences, and thereafter at such times as may be determined in the risk assessment.

3.5.6.10 The contractor shall reasonably satisfy himself that all employees of subcontractors are

informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment.

3.5.6.11 The Contractor shall satisfy himself that ensure that all subcontractor employees deployed in the site are:

a) informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment; and

b) issued with proof of health and safety induction training issued by a competent person and carry proof such induction when working on site.

3.5.7 First aid, emergency equipment and procedures

3.5.7.1 The Contractor shall where more than five employees are employed at a workplace, provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace. Such first aid boxes shall contain suitable first aid equipment.

3.5.7.1 The Contractor shall ensure that where there are more than 10 employees employed on the site that for every group of up to 50 employees at that workplace, at least one person is readily available during normal working hours, who is in possession of a valid certificate of competency in first aid.

3.5.8 Facilities for workers

3.5.8.1 The Contractor shall provide and keep clean and fit for use at or within reasonable access of the site:

a) at least one shower facility for every 15 workers;

b) at least one sanitary facility for every 30 workers;

c) changing facilities for each sex; and

d) sheltered eating areas.

3.5.8.2 A contractor shall provide reasonable and suitable living accommodation for the workers at construction sites which are remote from their homes and where adequate transportation between the s12.

4. Potential Sources of Risk

4.1 The following potential sources of risk to the health and safety of persons on site must be appropriately addressed by the Principal Contactor's H&SP. In addition, the Principal Contractor must perform its own risk assessments to enable it to take precautions to protect the health and safety of persons on site, to comply with the Principal Contractor's obligations under the Act and all Regulations made there under, including the Construction Regulations. All such precautionary measures and procedures must be included in the Principal Contactor's H&SP, which must be submitted to the Client for review and approval and where applicable should include:

- Noise

- Potential presence of asbestos that forms part of the structure (cement fibre)

- Dust
- Working at height (fall protection)
- Drilling (Breaking of walls)
- Formwork and support work
- Scaffolding
- Construction vehicles and mobile equipment
- Electrical installations and electrical machinery
- Housekeeping
- Stacking and storage practices
- Fire risks and fire precautions
- Use of jackhammers
- Hot work (steel cutting and welding)
- Portable electrical tools
- Intoxicated persons on site
- Use of ladders
- Impact of construction work upon occupants of buildings not evacuated for the duration of the work

PART C 4: SITE INFORMATION

Site description:	Frankfort Correctional Centre
Town:	Frankfort
Province:	Free State
Address:	4 De Villiers Street.
GPS Coordinates:	27º◦ 16’ 01.40”S 28º 29’ 38.52” E

The site where the generator is required is an active correctional centre; bidders are required to ensure that all correctional services safety and security requirements are adhered to.

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