






Quotation Advert

Opening Date: 2020-08-25 
Closing Date: 2020-09-01 
Closing Time: 11:00

INSTITUTION DETAILS



Institution Name: Head Office Quotations 
Province: KwaZulu-Natal
Department or Entity: Department of Health
Division or section: Central Supply Chain Management
Place where goods / services is required: Natalia Building
Date Submitted: 2020-08-25 

ITEM CATEGORY AND DETAILS

Quotation Number: ZNQ:
1217/19/20-H
Item Category: Services 
Item Description: Supply & Install standby generator 25kVA emergency power generator

Quantity (if supplies) 01

COMPULSORY BRIEFING SESSION / SITE VISIT

Select Type: Both 
Date: 2020-08-27 
Time: 10:00am
Venue: Harding Mortuary

QUOTES CAN BE COLLECTED FROM:

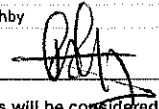
QUOTES SHOULD BE DELIVERED TO:

310 Jabu Ndlovu Street, PMB, 3201

ENQUIRIES REGARDING THE ADVERT MAY BE DIRECTED TO:

Name: Jabulani Hlongwane
Email: jabulani.hlongwane@kznhealth.gov.za
Contact Number: 033 815 8345
Finance Manager Name: Mr T Ashby

Finance Manager Signature:



No late quotes will be considered

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS / SERVICES / WORKS OFFERED? [IF YES ENCLOSE PROOF]

OFFICIAL PRICE PAGE FOR QUOTATIONS

SIGNATURE OF BIDDER DATE.....
 [By signing this document I hereby agree to all terms and conditions]

CAPACITY UNDER WHICH THIS QUOTE IS SIGNED.....

| Item No | Quantity | Description | Brand & model | Country of manufacture | Price | |
|---|----------|--|---------------|------------------------|-------|---|
| | | | | | R | c |
| 1 | 01 | Supply & Install standby generator 25kVA emergency power generator including associated electrical equipment at Harding Mortuary | | | | |
| | | NB: Specification Attached CIDB Rating: 1EB | | | | |
| | | Site inspection date & time 27/08/2020 @ 10:00 Venue: Harding Mortuary | | | | |
| | | Original documents required in a sealed envelope with current CSD summary report reflecting banking details, certified copy of B-BBEE certificate by verified agency and accredited by SANAS , Tax Clearance certificate or SARS pin | | | | |
| | | Responses to be delivered: 310 Jabu Ndlovu street, old boys Model, Quotation tender box Or quotations.scmho@kznhealth.gov.za | | | | |
| VALUE ADDED TAX (Only if VAT Vendor) | | | | | | |
| TOTAL QUOTATION PRICE (VALIDITY PERIOD 60 Days) | | | | | | |

| | |
|--|--|
| Does This Offer Comply With The Specification? | Does The Article Conform To The S.A.N.S. / S.A.B.S. Specification? |
| Is The Price Firm? | State Delivery Period E.G. E.G. 1day, 1week |

| | |
|---|--|
| Enquiries regarding the <u>quote</u> may be directed to: Contact Person: Jabulani Hlongwne Tel: 033-815 8345 | Enquiries regarding <u>technical information</u> may be directed to: Contact Person: Mr S Dlamini Tel: 033 940 2527 |
|---|--|

SPECIAL CONTRACT CONDITIONS OF QUOTATIONS

1. AMENDMENT OF CONTRACT

1.1. Any amendment to or renunciation of the provisions of the contract shall at all times be done in writing and shall be signed by both parties.

2. CHANGE OF ADDRESS

2.1. Bidders must advise the Department of Health (institution where the offer was submitted) should their address (*domicilium citandi et executandi*) details change from the time of bidding to the expiry of the contract.

3. GENERAL CONDITIONS ATTACHED TO THIS QUOTATION

- 3.1. The institution is under no obligation to accept the lowest or any quote.
- 3.2. The price quoted must include VAT (if VAT vendor). However, it must be noted that the department reserves the right to evaluate all quotations excluding VAT as some bidders may not be VAT vendors.
- 3.3. The bidder must ensure the correctness & validity of quote:
 - (i) that the price(s), rate(s) & preference quoted cover all for the work/item (s) & accept that any mistakes regarding the price (s) & calculations will be at the bidder's risk
- 3.4. The bidder must accept full responsibility for the proper execution & fulfilment of all obligations conditions devolving on under this agreement, as the Principal (s) liable for the due fulfilment of this contract.
- 3.5. This quotation will be evaluated based on the 80/20 points system, specification & correctness of information. All required documentation must be completed in full and submitted.
- 3.6. Offers must comply strictly with the specification.
- 3.7. Only offers that meet or are greater than the specification will be considered.
- 3.8. Late quotes will not be considered.
- 3.9. Expired product/s will not be accepted. All products supplied must be valid for a minimum period of six months.
- 3.10. A bidder not registered on the Central Suppliers Database or verification has failed will not be considered.
- 3.11. All delivery costs must be included in the quote price, for delivery at the prescribed destination.
- 3.12. Only firm prices will be accepted. Such prices must remain firm for the contract period. Non-firm prices (including rates of exchange variations) will not be considered.
- 3.13. In cases where different delivery points influence the pricing, a separate pricing schedule must be submitted for each delivery point.
- 3.14. In the event of a bidder having multiple quotes, only the cheapest according to specification will be considered. Furthermore a verification will be done to identify if bidders have multiple companies and are quoting (cover-quoting) for this bid. In such instances only the cheapest bid according to specification will be considered.

4. SAMPLES

- 4.1. In the case of the quote document stipulating that samples are required, the supplier will be informed in due course when samples should be provided to the institution. (This decreases the time of safety and storage risk that may be incurred by the respective institution). The bidders sample will be retained if such bidder wins the contract.
 - (i) If a company/s who has not won the quote requires their samples, they must advise the institution in writing of such.
 - (ii) If samples are not collected within three months of close of quote the institution reserves the right to dispose of them at their discretion.
- 4.2. **Samples must be made available when requested in writing or if stipulated on the document.**
 - (i) If a Bidder fails to provide a sample of their product on offer for scrutiny against the set specification when requested, their offer will be rejected. All testing will be for the account of the bidder.

5. COMPULSORY SITE INSPECTION / BRIEFING SESSION

- 5.1. Bidders who fail to attend the compulsory meeting will be disqualified from the evaluation process.
 - (i) The institution has determined that a compulsory site meeting will not take place
 - (ii) Date ____/____/____ Time ____:____ Place _____

| | |
|--------------------|--|
| Institution Stamp: | Institution Site Inspection / briefing session Official Full Name: Signature: Date: |
|--------------------|--|

6. STATEMENT OF SUPPLIES AND SERVICES

- 6.1. The contractor shall, when requested to do so, furnish particulars of supplies delivered or services executed. If he/she fails to do so, the Department may, without prejudice to any other rights which it may have, institute inquiries at the expense of the contractor to obtain the required particulars.

7. SUBMISSION AND COMPLETION OF SBD 6.1

- 7.1. Should a bidder wish to qualify for preference points they must complete a SBD 6.1 document. Failure by a bidder to provide all relevant information required, will result in such a bidder not being considered for preference point's allocation. The preferences applicable on the closing date will be utilized. Any changes after the closing date will not be considered for that particular quote.

8. TAX COMPLIANCE REQUIREMENTS

- 8.1. In the event that the tax compliance status has failed on CSD, *it is the suppliers' responsibility to provide a SARS pin in order for the institution to validate the tax compliance status of the supplier.*
- 8.2. In the event that the institution cannot validate the suppliers' tax clearance on SARS as well as the Central Suppliers Database, *the quote will not be considered and passed over as non-compliant according to National Treasury Instruction Note 4 (a) 2016/17.*

9. TAX INVOICE

- 9.1. A tax invoice shall be in the currency of the Republic of South Africa and shall contain the following particulars:

- (i) the name, address and registration number of the supplier;
- (ii) the name and address of the recipient;
- (iii) an individual serialized number and the date upon which the tax invoice is issued;
- (iv) a description and quantity or volume of the goods or services supplied;
- (v) the official department order number issued to the supplier;
- (vi) the value of the supply, the amount of tax charged;
- (vii) the words tax invoice in a prominent place.

10. PATENT RIGHTS

- 10.1. The supplier shall indemnify the **KZN Department of Health** (hereafter known as the purchaser) against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

11. PENALTIES

- 11.1. If the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract.

12. TERMINATION FOR DEFAULT

- 12.1. The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:
- (i) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract,
 - (ii) if the supplier fails to perform any other obligation(s) under the contract; or
 - (iii) if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- 12.2. In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services.
- 12.3. Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

FAILURE TO COMPLY WITH ABOVE WILL RESULT IN YOUR QUOTE BEING PASSED OVER.

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

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

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

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all quotes:

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

1.2 The value of this quote is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable.

1.3 Points for this quote shall be awarded for:

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

1.4 The maximum points for this quote is allocated as follows:

| | POINTS |
|--|---------------|
| PRICE | 80 |
| B-BBEE STATUS LEVEL OF CONTRIBUTOR | 20 |
| Total points for Price and B-BBEE must not exceed | 100 |

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the quote, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

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

2. DEFINITIONS

- (a) "B-BBEE" means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) "B-BBEE status level of contributor" means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) "bid" means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) "Broad-Based Black Economic Empowerment Act" means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) "EME" means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) "functionality" means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) "prices" includes all applicable taxes less all unconditional discounts;
- (h) "proof of B-BBEE status level of contributor" means:
 - 1) B-BBEE Status level certificate issued by an authorized body or person;
 - 2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - 3) Any other requirement prescribed in terms of the B-BBEE Act;
- (i) "QSE" means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (j) "rand value" means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 PREFERENCE POINT SYSTEMS

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

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \text{ Where}$$

- P_s = Points scored for price of bid under consideration
- P_t = Price of bid under consideration
- P_{min} = Price of lowest acceptable bid

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

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

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

5. BID DECLARATION

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

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

6.1 B-BBEE Status Level of Contributor: =(maximum of 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.)

7. SUB-CONTRACTING

(Tick applicable box)

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

| | | | |
|-----|--------------------------|----|--------------------------|
| YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
|-----|--------------------------|----|--------------------------|

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....

8. Whether the sub-contractor is an EME or QSE

(Tick applicable box)

iv) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2017:

| | | | |
|-----|--------------------------|----|--------------------------|
| YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
|-----|--------------------------|----|--------------------------|

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

9. DECLARATION WITH REGARD TO COMPANY/FIRM

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

9.2 VAT registration number:.....

9.3 Company registration number:.....

9.4 TYPE OF COMPANY/FIRM [TICK APPLICABLE BOX]

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

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....
.....

9.6 COMPANY CLASSIFICATION [TICK APPLICABLE BOX]

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

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

9.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

| |
|-----------|
| WITNESSES |
| 1. |
| 2. |

| |
|-------------------------------------|
| SIGNATURE(S) OF BIDDERS(S) |
| DATE: |
| ADDRESS..... |

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH

BID No. ZNB _____

DESIGN, MANUFACTURE, DELIVERY TO SITE, INSTALLATION AND COMMISSIONING OF
25 kVA EMERGENCY POWER GENERATOR WITH A WEATHER PROOF AND SOUND
ATTENUATED CANOPY TYPE EMERGENCY POWER GENERATOR INCLUDING
ASSOCIATED ELECTRICAL EQUIPMENT AND MINOR BUILDING WORK.

CIDB GRADING: EB1

INDEX

- PART ONE – PROJECT SPECIFICATION**
- PART TWO – TECHNICAL SPECIFICATION**
- PART THREE – PARTICULAR SPECIFICATION
INCLUDING SCHEDULE OF
EQUIPMENT**
- PART FOUR - SCHEDULE OF PRICES**

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH

BID No. ZNB _____

**DESIGN, MANUFACTURE, DELIVERY TO SITE, INSTALLATION AND COMMISSIONING OF 25
kVA EMERGENCY POWER GENERATOR WITH A WEATHER PROOF AND SOUND ATTENUATED
CANOPY TYPE EMERGENCY POWER GENERATOR INCLUDING ASSOCIATED ELECTRICAL
EQUIPMENT AND MINOR BUILDING WORK.**

PART ONE

PROJECT SPECIFICATIONS

1 NOTES TO BIDDERS

- 1.1 The institutions will remain open and operational at all times therefore the Contractor shall make the necessary arrangements with the Institutional Management and maintenance staff for any power outages that are required. This may necessitate weekend work
- 1.1.2 All items to be priced fully inclusive of all charges e.g. labour, transport, scaffolding, materials, profit, etc., but excluding Value Added Tax.
- 1.1.3 The Administration reserves the right to negotiate prices in the Schedule of Prices.
- 1.1.4 All redundant material and rubble shall to be removed from the institution's property immediately.
- 1.1.5 All equipment and materials used in this contract shall be that which is specified or **other approved prior to submission and closure of the bid.**
- 1.1.6 The Contractor is advised to examine all the drawings (if any) and to visit the site prior to tendering to acquaint him/herself with the nature of the work to be done and access to the siting of the existing buildings etc., as no claim will be allowed on the grounds of ignorance of the conditions under which the work will be executed.
- 1.1.7 All items in the Schedule of Prices are **PROVISIONAL** and subject to re-measure after installation.
- 1.1.8 The Schedule of Prices shall be read in conjunction with the Scope of Work. Any discrepancies or omissions shall be brought to the attention of the Project Leader immediately.
- 1.1.9 **Preference will be given to Bidders who have registered offices / workshops within the borders of the Province of KwaZulu-Natal. This is in an effort to reduce response times to call outs for breakdowns in the more remote areas of the Province.**
- 1.1.10 **Only Contractors who are registered with a CIDB Grading of EB 1 or higher shall be considered.**

1.2 SCOPE OF CONTRACT

- 1.2.1 The Scope of the Contract is contained in Part Three (Particular Specification) hereunder.

1.3 PERIOD OF CONTRACT

Two (2) Months as the completion period for the Contract from the date of site handover.

1.4 SITE AND MODE OF PROCEDURE

The work contained in this contract will be carried out on the site of Harding Mortuary in the Province of KwaZulu-Natal.

Damage to the existing buildings - Bidders to note that any damages done or occurring to any of the buildings will be repaired at the expense of the contractor/ Bidder.
The work undertaken shall be to the satisfaction of the KwaZulu-Natal Department of Health.

1.5 SATISFACTORY INSTALLATION

All work shall be carried out according to the Department of Health's Standard Preambles to all Trades, the OHS Act, National Building Code of Practices and Regulations, the KZN DOH Policy Document for the Design of Electrical Installations and the SANS 10142-1 Wiring Code.

Copies of these documents are available from the office of the Manager, Infrastructure Development KwaZulu-Natal Department of Health, Townhill Office Park 35 Hyslop Road, Pietermaritzburg and may be obtained on request.

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH

BID No. ZNB _____

DESIGN, MANUFACTURE, DELIVERY TO SITE, INSTALLATION AND COMMISSIONING OF 25 kVA EMERGENCY POWER GENERATOR WITH A WEATHER PROOF AND SOUND ATTENUATED CANOPY TYPE EMERGENCY POWER GENERATOR INCLUDING ASSOCIATED ELECTRICAL EQUIPMENT AND MINOR BUILDING WORK.

PART TWO

TECHNICAL SPECIFICATION

1. GENERAL: WEATHER PROOF AND SOUND ATTENUATED CANOPY TYPE STANDBY GENERATOR

FAILURE TO COMPLETE THE SCHEDULE OF INFORMATION IN ITS ENTIRETY SHALL LEAD TO THE DISQUALIFICATION OF THE BID.

The whole of the installation shall be carried out in accordance with:

- The Department of Health Policy Document on the Design of Electrical Installations Revision 7 of 2013.
- All low voltage switchgear and control gear assemblies are to comply to SABS 1473 Part 1 - 1989 /IEC 439 - 1 1985.
- An Electrical Certificate of Compliance, in accordance with the SANS 10142-1 Wiring Code will be required for all Electrical Works.
- The Occupational Health and Safety Act and Regulations 85 of 1993.
- The Municipal By-laws and any special requirements of the Supply Authorities of the area or district concerned.
- Local Fire Regulations.
- The Contractor should fully familiarise himself with these documents prior to quoting.

The **Weather Proofed and Sound Attenuated Canopy Type** stand-alone standby generator set herein specified is to be installed at **Harding Mortuary located at Harding in the KwaZulu-Natal Midlands.**

The ambient temperatures are 40°C maximum and 05°C minimum and is approximately 1 200m above sea level.

In order to best meet South Africa's employment targets, locally assembled generator sets will receive preference.

Due to the critical nature of this installation, ONLY genuine and accredited DIESEL GENERATOR SET MANUFACTURERS with Local 24 hour support and IN HOUSE maintenance facilities will be considered.

When pricing this document, allowance must be made for the installation to be carried out after hours and / or over a weekend at a time suitable to the KZN Department of Health's institution. Prior to any shutdown it should be agreed with the Health Institution whether any temporary standby plant is required. Apart from this, downtime must be kept to a minimum and once an installation starts, it must be completed and commissioned without any interruptions. The Tenderer must provide documented proof that they have the staff and capacity to carry out this type of installation.

2. SCOPE OF WORK

The Contract comprises the design, manufacture, assembly, delivery to site, off-loading at site, installation, testing, commissioning and handing over in first class working order of a complete Canopy type standby diesel generating set and all ancillary equipment necessary to comply with the requirements of this specification. The plant generally shall comprise a diesel engine coupled to an alternator mounted on a common base, a set of starting batteries, automatic charging unit, interconnecting cables, a control panel housing the generator M.C.C.B. and all necessary switchgear, including the changeover equipment, together with a fuel system, capable of running the set for 72 hours at full load. The set and bulk tank (if required) shall be positioned on a bunded slab (if required) or on a concrete slab and this construction work forms part of this project.

3. CANOPY & PLANT LOCATION

- The set shall consist of a weather and soundproofed canopy type unit. The weather proof canopy shall be manufactured from enamel painted galvanized sheet for inland locations (>50km from coast) and 3CR12 for coastal locations (<50km from coast). It shall fit onto the sets base frame, making the entire unit self-contained.
- The soundproofing material shall not of a mineral wool attenuation material and an alternative attenuation material shall be acceptable to the Department of Health prior to manufacture.
- Lockable hinged doors (container type system with a robust locking facility required) shall allow access for maintenance purposes and louvres complete with vermin proofing shall be installed at both ends.
- The louvres shall be sized to suit the sets cooling and combustion air flow requirements for enclosed generating units. The successful Contractor shall provide the Department of Health with the relevant temperature rating charts for the radiator prior to manufacture.
- The canopy shall be painted with an etching primer and then finished with two coats of enamel paint.
- The concrete bunded slabs for both the generator set and bulk tank (where applicable and if required) forms part of this contract and drawings shall be provided to the engineer for approval, prior to construction taking place.

The standby diesel generating set shall to be located as indicated under Part Two Particular Specification which forms part of this document.

Tenderers are advised to acquaint themselves with the site conditions including access, as no claim on the grounds of want of knowledge will be entertained.

4. PLANT DUTIES

The diesel generating set and its ancillary equipment shall normally operate as an automatic mains failure unit. It shall be capable of delivering its full rated output at any time and any ambient conditions likely to occur at the site. The generating set will not be required to be synchronized with the main supply.

5. SYSTEM

The system to which the plant is to be connected is 3 phase, 4 wire, 400 volt between phases and 230 volt between phase and neutral, with a frequency of 50 Hz.

6. RATING

Note: The unit shall be capable of delivering 25 kVA at 0.8 power factor.

The unit shall deliver 60% initial load + - 15 sec after start up and the balance of load 40% shall be delivered after a further 10 sec.

The rating of the diesel generating set shall be based on operation of the set when equipped with all necessary accessories such as radiator fan, air cleaners, lubricating oil pump, fuel transfer pump, fuel injection pump, water circulating pump and battery charging alternator.

The generator 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 BS5514.

7. DIESEL ENGINE

7.1. Type

The engine shall be of the multi cylinder, four stroke cycle, cold starting, direct injection, compression ignition type, suitable for operation on diesel fuel.

Only genuine engines with full local Original Equipment Manufacturer (O.E.M.) backup will be accepted. Grey products and "copies" will under no circumstances be accepted and will lead to the tender being rejected.

7.2. Cooling System

The engine shall be of the radiator coolant type and the cooling system shall be of sufficient capacity to cool the engine when the set is delivering its full rated load in the ambient conditions specified in Clause 1.

The engine shall be equipped with a heavy duty type radiator, complete with engine driven fan and centrifugal coolant circulating pump and a thermostat to maintain the engine at the makers recommended temperature level for a sound attenuated outdoor canopy type enclosure.

A thermostatically controlled immersion heater shall be provided and fitted in the engine cooling circuit to ensure easy starting of the engine at any ambient temperature.

The heater shall be so fitted that it can easily be withdrawn without having to drain the system. The heater shall be suitable for a 220 volt 50 Hz supply.

A low radiator level shutdown sensor switch shall be fitted in the radiator header tank. A separate temperature sensor must be fitted on the block for the normal high engine temperature shutdown and gauge.

The sight gauge or a transparent radiator coolant container shall be easily accessible for reading purposes and it shall be safe and easy to top up the coolant without having to climb inside or over the unit.

7.3. Speed

The engine speed shall not exceed 1500 R.P.M. at normal full load conditions.

7.4. Fuel

The engine shall be capable of satisfactory performance on a commercial grade of distilled petroleum fuel oil such as Number 2 fuel oil. (Commercial grade diesel fuel: 500ppm).

7.5. Rating

The engine shall be suitable for continuous running at the specified speed, delivering its rated output at the specified site conditions.

In addition the engine shall be capable of delivering 110 % load for one hour, after the set has been running at full load for a period of six hours and shall, after the overload period of one hour be capable of maintaining the rated output continuously without any undue mechanical strain, overheating, incomplete fuel combustion or other ill effects.

The engine shall have sufficient capacity to start up and shall within 15 seconds from mains failure, supply the full rated load at the specified voltages and frequency. See clause 9.1 below.

7.6. Governor

The engine shall be of the latest electronic type, or controlled by a governor to maintain governed speed for 50 Hz operation. Class A1 governing in accordance with B.S. 5514 as amended is required.

7.7. Fuel System

The complete system including bulk and base tank shall be sized to allow the set to run for 72 hours at full load. Only Original Equipment Manufacturer (O.E.M.) filters shall be allowed.

An engraved label shall be installed in a conspicuous area on the generator control panel that indicates the following:

- **Base tank capacity.**
- **Bulk tank capacity.**
- **Full load litres per hour consumption.**

7.7.1 Base tank

Normally for generators rated up to and including 200 kVA:

The fuel tank shall be an integral part of the base frame of the generator set. The **base** tank shall have sufficient capacity to run the engine on full load for a **minimum period of 72 hours**.

The base tank shall consist of an ISO 9001 quality closed channel self-bund walled type that shall be of sufficient capacity to contain any spillage, equivalent to 80% in volume of the base tank. 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 base fuel tank shall consist of an ISO 9001 quality containerised double walled tank mounted on a steel reinforced concrete plinth of suitable MPa strength to carry the weight of a fully fuelled base tank and canopy type generator.

The base tank shall be fitted with a suitable filter, breather pipe, visual gauge, removable inspection cover, drain, filler cap, low level and extra low shutdown alarm sensors. These shall supply an audible and visible signal on the control panel.

In addition, pump / solenoid valve start / stop sensors are required to control the automatic filling of the base tank from a remote free standing tank.

Generators rated above 200 kVA:

Should this not be possible, a combination of a “**base**” “day” tank and “**bulk**” tank, will be required to meet the 72 hour (at full load) running **time** period.

The base tank shall consist of an ISO 9001 quality closed channel self-bund walled type that shall be of sufficient capacity to contain any spillage, equivalent to 80% in volume of the base tank. 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 **base** tank shall be fitted with a suitable filter, **breather pipe**, **visual gauge**, removable inspection cover, drain, filler cap and low level and extra low shutdown alarm sensors. These shall supply an audible and visible signal on the control panel.

In addition, pump / solenoid valve start / stop sensors are required to control the automatic filling of the base tank from a remote free standing tank.

The set shall also be supplied with a hand operated "wing pump" and a suitable length of oil resistant hose, suitable for filling it from containers. The hose shall be of the "push lock" type and shall be sufficient in length to extend 5 meters outside of the canopy door.

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 minimum period of 12 hours.

7.7.2 Bulk Tank (if the base tank cannot meet the required volume)

The bulk fuel tank shall consist of an ISO 9001 quality closed channel self-bund walled tank mounted on a steel reinforced concrete plinth of suitable MPa strength to carry the weight of a fully fuelled base tank.

The size and configuration of the bulk tank if required shall be matched to the size of generator to enable the generator to run continuously for a minimum period of 60 hours on full load.

An engraved label shall be installed in a conspicuous area on the generator control panel that indicates the following:

- **Base tank capacity.**
- **Bulk tank capacity if installed.**
- **Full load litres per hour consumption.**

In the event of the standard bulk tank size being in between the required volume, the next largest size must be supplied

The composite bulk tank together with all interconnecting supply and return pipes, low level alarm, **visual** fuel level indicators, lockable shut off valves, breather and an automatic filling system shall be provided. The bulk tank shall be positioned as shown on drawing No.12005H-R1

The automatic filling of the base tank, from the bulk tank, shall be controlled by level switches mounted in the base tank. These switches shall start and stop the electric self-priming pump, or solenoid valve system.

Manually operated filling of the base tank from the bulk tank shall be by way of a spring loaded push button switch that shall switch off the pump if the push button switch is released by the operator.

Drain plugs shall be constructed in such a manner that shall prevent the removal of such drain plug by conventional means i.e. shifting spanner, pliers etc.

Concrete lintels are required to prevent the feet of the bulk tank from corrosion due to standing rain water possibly accumulated in the bund walled area.

The construction of the reinforced concrete plinth and other minor civil work shall form part of this Contract.

7.8. Lubricating

The engine shall be provided with a forced feed lubricating system with a gear type lubricated oil pump for supplying oil under pressure to the main bearings, crank pin bearings, pistons, piston pins, timing gears, camshaft bearings, valve rocker mechanism and all other moving parts.

Full flow replaceable element type oil filters, conveniently located for servicing, shall be provided. Filters shall be provided with a spring loaded by-pass valve to ensure circulation if the filters become clogged.

7.9. Cylinder Liners

The engine shall be provided with removable Original Equipment Manufacturer (O.E.M.) wet or dry type cylinder liners of close grained alloy iron.

7.10. Air Cleaners

The engine shall be provided with one or more Original Equipment Manufacturer (O.E.M.) dry type air cleaners which shall provide positive air filtration.

7.11. Exhaust System

The engine shall be fitted with an efficient 3CR12 exhaust system for inland areas (>50 km's from the coast) or Grade 304 stainless steel in coastal areas. Flexible bellows shall be fitted between the exhaust outlet and the silencer. The flexible piping must on no account be used to form a bend or compensate for misalignment. The silencer shall be located within, or on top of the canopy. The silencer shall be of the highly efficient type suitable for use in residential areas and shall be capable of providing 20 to 30 decibels of suppression.

The silencer and discharge piping shall be suitably supported.

The exhaust pipe inside the canopy shall be suitably lagged then clad in galvanized or polished stainless steel sheet.

The end of the exhaust shall be cut to a 45 degree angle, in order to prevent rain ingress and mesh shall be welded into the end to prevent birds or rodents from entering the exhaust pipe.

7.12. Flywheel

The flywheel shall be designed to limit the cyclic irregularities to within the limits laid down in B.S. 5514 as amended.

7.13. Engine Starting

The engine shall be equipped with a 12/24 volt starting system of sufficient capacity to crank the engine at a speed, which will allow starting of the engine.

The starting equipment shall include a 12/24 volt D.C. starter motor engaging directly on the flywheel ring gear. A heavy duty battery charging alternator and maintenance free batteries of the Delco/Deltec type shall be supplied. The batteries shall be mounted in a lockable battery box.

The batteries shall be connected to the engine with suitably rated P.V.C. insulated flexible leads.

The batteries shall have sufficient capacity to provide three automatic attempts to start immediately followed by three manual attempts without any appreciable drop in voltage. The automatic attempts to start shall each be of not less than 10 seconds duration with 10 second intervals between and the manual attempts shall be based on the same cranking period.

A device shall be provided to limit the cranking time of each automatic attempt to start, to the 10 seconds specified above and to provide three automatic attempts after which the automatic starting mechanism will cut out until manually reset and at the same time sound an audible alarm and illuminate the L.E.D. on the AMF controller. The engine driven battery charging alternator shall have sufficient capacity to recharge the batteries back to normal starting requirements in not more than six hours.

A battery charging unit of the trickle charge type shall be provided to maintain the batteries at full capacity when the set is at rest. The charging equipment shall be connected so that the battery is normally charged from the mains, but is also charged under mains failure conditions from the

diesel generating plant and if required via an inhibitor relay to prevent dual charging. The unit shall be complete with voltmeter, push button test, D.C. and A.C. protective gear. The charging unit shall be incorporated in the diesel generator control cabinet.

7.14. Engine Instruments

As per the Deep Sea 7320 Controller fitted with a DSE Webnet DSE890 Gateway complete with separate GPS GSM antennae

7.15. Safety Controls

The engine shall be equipped with the safety controls as specified in 11.4.

7.16. Engine/Alternator Coupling and Base

The engine and alternator shall be direct coupled and arranged for operation at 400/230 volt, 50Hz and 1500 RPM.

A steel fabricated base-frame (incorporating the day fuel tank) with anti-vibration mounts between the engine / alternator combination and base shall be provided and must be able to be placed directly onto concrete lintels onto the concrete plinth / slab. Concrete lintels are required to prevent the base frame from corrosion due to standing rain water possibly accumulated

The base frame shall incorporate the canopy mounting arrangement.

8. **RADIATOR EXTRACT DUCTING**

A galvanized duct shall be provided and installed between the radiator face and outlet louver to positively duct the hot expelled air out of the canopy. A flexible section shall be fitted between the radiator face and duct in order to prevent the recirculation of hot discharged air.

9. **A.C. GENERATOR**

As per the engine requirements only genuine engines with full local Original Equipment Manufacturer (O.E.M.) backup will be accepted. Grey products and "copies" will under no circumstances be accepted and will lead to the tender being rejected.

9.1. Rating

The generator shall be a 400/230 volt, 3 phase, and 4 wire 50 Hz machine. The generator rating shall be applicable for continuous service application at a Prime rating.

Note: The unit shall be capable of delivering 25 kVA at 0.8 power factor.

The unit shall deliver 60% initial load + - 15 sec after start up and the balance of load 40% shall be delivered after a further 10 sec.

9.2. Construction and Manufacture

The generator shall be a revolving field type, coupled directly to the engine flywheel through a flexible disc for positive alignment. The generator housing shall bolt directly to the engine flywheel housing and shall be equipped with a heavy duty ball bearing support for the rotor. The motor shall be dynamically balanced up to 25 % over speed.

The generator shall be of heavy duty compact design. Insulation shall be Class H as recognised by B.S.5514.

The generator field excitation shall be performed by a rotating exciter mounted on the generator motor shaft through a brushless rotating diode system. The voltage regulator shall be of the static-magnetic type with silicon diode control. It shall be mounted on the top or side of the generator and enclosed in a drip proof enclosure. A built in voltage adjusting rheostat shall provide 10 % voltage adjustment.

9.3. Performance

The generator shall be capable of continuously delivering the full rated load specified in Clause 9.1 and of providing a 10 % overload for the period and in the manner specified for the engine in Clause 7.5.

9.4. Wave Form

The shape for the voltage and current wave shall be within the limits laid down by B.S. 5000.

9.5. Voltage Regulation and Response

The alternator shall be self-regulated and shall incorporate an automatic voltage regulator.

The voltage regulation shall not exceed $\pm 2\frac{1}{2}\%$, from no load to full load, including cold to hot variations at any power factor between 0.8 lagging and unity and inclusive of speed variations within the limits stated in Clause 7.6.

Upon application of full load at a power factor of 0.8 lagging the alternator voltage shall recover to within 2.5% of the steady state value within approximately 300 milliseconds.

Upon application of any load specified in transient, maximum voltage dip shall not exceed 20% of the nominal voltage when measured at the alternator terminals.

9.6 Windings

The generator stator windings shall be star connected with the star point brought out and connected to the neutral terminal in the terminal box on the generator to provide a 400/230 volt supply.

9.7. Terminal Box

The terminal box shall be fitted to suit the cable route and it shall be large enough to allow for glanding and connecting the cables specified in Clause 12.2.

9.8. Radio and T.V. Interference

The generating set shall be suitably suppressed within the limits of B.S. 800 against radio and television interference.

10. **DIESEL GENERATOR CONTROL PANEL**

10.1. Type and Construction

The control panel shall be designed for the control of the diesel generating set with instrumentation and protective devices to meet both manual and automatic mode requirements.

The control panel shall be of robust construction, totally enclosed and dustproof.

It shall be of folded 1,6 mm thick cold rolled sheet steel construction, suitable for front entry through hinged doors. Internal chassis plates, circuit breaker pans and gland plates shall be provided. Special attention shall be given to vermin proofing and dust sealing.

Prior to painting, all steelwork must be thoroughly degreased and re-rusted and then primed with a zinc chromate primer. All internal steel chassis plates, gland plates and switchgear brackets shall be painted with white powder epoxy paint and all exterior steel surfaces shall be finished with red powder epoxy paint

The control panel shall be built into three separate sections, with the controls, change-over and on load bypass switch (If required) each having its own section.

10.2 Bus-Bars, Wiring, Switchgear, etc.

All bus-bars and wiring shall be adequately rated and suitably supported, and control wiring shall be neatly laced and numbered with durable plastic ferrules, for easy tracing. Suitable terminals are to be provided for incoming and outgoing cables. Suitably sized holes shall be punched in the gland-plates for the required number of cable terminations for both incoming and outgoing cables. The cables shall be secured to the gland plate by means of cable glands as Pratley, C.C.G. or other approved. The gland plate shall be suitably braced to prevent distortion after the cables are glanded thereto.

Circuit breakers are to be of moulded case construction and the 4 pole motorized change-over switch and "On Load" bypass switch shall be a reputable make, with full local representation.

All instrumentation shall be of 1.5% accuracy and their performance shall comply with B.S.89. The instruments shall be flush mounted and the dial dimensions shall be 96mm x 96mm.

Tenderers must give assurance with their tender that replacements for the equipment, switchgear and instruments used in the construction of the panel are readily available from stock held in the Republic of South Africa.

11. CONTROL PANEL

11.1 The change-over panel is to be situated inside the canopy.

11.2 The supply and installation of all cables and supports between the generator set and AMF control panel forms part of this contract.

11.3 Changeover Board and Bypass Switch

11.3.1 1 x T.P. Generator MCB. The MCB shall be rated to suit the generator offered and shall have both adjustable thermal and instantaneous overload elements.

11.3.2 If over 150kVA

1 x Set of Four Pole automatic changeover isolators with motor operated mechanisms (Minimum rating of 630amps) and with appropriate auxiliary and control contacts with electrical and mechanical interlocking arrangements to the approval of the Department. The units are to be Socomec, ABB or other approved **prior to the close of the Tender.**

11.3.3 If under 150kVA

1 x Set of Four Pole suitably rated contactors with electrical and mechanical interlocking arrangements to the approval of the Department.

11.3.4 If over 150kVA

1 x On load hand operated by pass switch (Minimum rating of 630amps) of the isolator type with three operating positions labelled "NORMAL", "OFF" and "BYPASS" to enable the changeover equipment and control circuitry to be by passed for maintenance purposes. The units are to be Socomec, ABB or other approved **prior to the close of the Tender.**

11.3.5 If under 150kVA

No by-pass switch required.

11.3.6 3 x Open ring CT's suitably scaled.

- 11.3.7 1 x Open ring VT
- 11.3.8 Load, neutral and earth bus-bars.
- 11.3.9 Control Section

- a) Automatic constant voltage battery charger.
- b) Electronic governor control (if required and not an electronic engine).
- c) Control C/B for instruments.
- d) Control relays for change over contacts.
- e) 12 / 24 Volt fuel relays.
- f) Terminal strips.

11.3.10 Door Mounted Components

NOTE:

While the controller incorporates some of this equipment, the specified items as detailed below are **STILL REQUIRED** and shall be mounted on the door.

- a) 1 x Deep Sea DSE 7320 Generator Controller fitted with a DSE Webnet DSE 890 Gateway complete with separate GPS and GSM Antennae.
- b) 3 x Flush mounted M.D.I. 96 x 96mm dial ammeters suitably scaled
- c) 1 x Flush mounted 96 x 96 mm dial voltmeter, 0 - 500VAC.
- d) 1 x Flush mounted voltmeter selector switch with off, phase to phase and phase to neutral positions.
- e) 1 x Flush mounted running hour meter.
- f) 1 x Emergency stop push button - "Latching type".
- g) 1 x Engine alternator charge indication.

1.4 Control Equipment Requirement

Control systems may not consist of the electromagnetic relay type. **Only the Deep Sea DSE 7320** or equivalent (Subject to approval by DoH **prior to the closure of the Tender**) solid state programmable systems will be accepted.

The solid state controller and associated systems wiring shall be to the control system manufacturer's guidelines and shall be adequately protected against transient over voltages arising from lightning effects, switching surges, power system surges or mains and alternator borne noise/interference. Full details of the suppression systems are to be provided at tender. Wiring to and from the solid state programmable controller is to be screened as necessary to prevent electrostatic and magnetic interference from adjacent wiring/systems.

SPECIFICATION FOR CONTROLLER

FRONT PANEL INDICATORS AND DISPLAYED MESSAGES

The controller status including Warning and Shutdown/ Critical alarms shall be indicated by a combination of LCD and messages on the LCD display.

| CONDITION | LCD | DISPLAY MESSAGE | WARNING | SHUTDOWN |
|-------------------------|-----|-----------------|---------|----------|
| HIGH ENGINE TEMPERATURE | | X | | X |

| | | | | |
|--|-----|---|---|---|
| LOW OIL PRESSURE | | X | | X |
| OVER SPEED | | X | | X |
| UNDER SPEED | | X | | X |
| LOW FUEL AT 30% OF CAPACITY | X | X | X | |
| NO FUEL AT 10% OF CAPACITY | X | X | | X |
| LOW BULK TANK | | X | X | |
| LOW WATER | | X | | X |
| START FAILS AFTER 3 CRANKS AT 10 SECOND INTERVALS. | X | X | | X |
| EMERGENCY STOP | X | X | | X |
| SHUTDOWN / CRITICAL | X | X | | X |
| MAINS PHASE ROTATION FAULT | | X | | X |
| HIGH MAINS VOLTS | | X | | X |
| LOW MAINS VOLTS | | X | | X |
| MAINS ON | X | X | | |
| MAINS ON LOAD | X | X | | |
| ALTERNATOR ON | X | X | | |
| ALTERNATOR ON LOAD | X | X | | |
| ALTERNATOR PHASE ROTATION | | X | | X |
| HIGH ALTERNATOR VOLTS | | X | | X |
| LOW ALTERNATOR VOLTS | | X | | X |
| BATTERY VOLTS FAULT | | X | X | |
| ALTERNATOR CHARGE FAULT | | X | X | |
| AUTO | X | | | |
| TEST | X | | | |
| MANUAL | X | | | |
| MANUAL START | X | | | |
| MANUAL STOP | X | | | |
| MANUAL OR TEST (NOT IN AUTO) | X | | | |
| TIME DELAYS IN SECONDS | | | | |
| MAIN FAILURE DELAY | 10 | | | |
| START-UP TIME | 5 | | | |
| MAINS RETURN DELAY | 60 | | | |
| COOL DOWN DELAY BEFORE SHUT DOWN. | 120 | | | |

FRONT PANEL SWITCHES

As per the Deep Sea 7320 controller

PLANT OPERATION

The mode selector touch pad functions shall be as follows

- | | |
|-----------|--|
| OFF/RESET | Control system off and alarm condition reset. |
| AUTO | Automatic starting and stopping of the set dependent on the mains supply. |
| MANUAL | Starting and stopping activated manually. In this mode the load will not be transferred in the event of a mains failure. |
| TEST | The set will start automatically in this position. The load will be taken by the alternator in the event of a mains failure and will run off load. |

LOGGING OF EVENTS

As per Deep Sea DSE 7320 controller

USER PROGRAMMABLE

As per Deep Sea DSE 7320 controller

12. ELECTRICAL

Cables between the generator set and control panel shall be supplied and installed in accordance with the requirements of the S.A.N.S. Wiring Code (S.A.N.S. 10142 – 1:2017 as amended).

12.2. Terminations

The cables are to be made off with suitable cable glands as C.C.G, Pratley or other approved. The cable glands at the control panel shall be secured to the gland plate in the base section of the panel and at the generator end to the terminal box.

The cable conductors shall be terminated with suitably rated pressure crimped cable lugs.

12.3. Earthing

The neutral point of the generator shall be solidly connected, by means of an appropriate size of insulated earth conductor, to the earth bar in the alternator and in the panel. All plant, ancillary equipment and steel work in the stand-by plant room shall be suitably bonded together with an appropriate size of bare copper tape which shall also be connected to the earthbar.

An Earth Mat should be installed (if not already in place) of sufficiently low impedance to match the generator rating.

12.4. Phase Rotation

The Contractor shall ensure that the mains and generator phase rotations are identical. The existing phase rotation shall be determined prior to the changeover shutdown to ensure that the new set is connected with the same phase rotation. A sign indicating the phase rotation shall be fixed to the control panel door in a manner that it is conspicuous.

13. PAINTING

The engine and generator shall be painted **uniformly** with best quality enamel paint in a **colour approved by the Department**.

The control panel shall be painted with best quality powder coated signal red paint.

14. TESTING

14.1. Testing At Contractor's Premises

An acceptance test shall be carried out at the Contractor's works to establish that the diesel generating plant and its ancillary equipment meets with the requirements of the specification.

The Contractor shall give the Consultant at least seven days' notice prior to testing the plant. In the event of the plant failing the test and having to be re-tested, at some future date, all expenses (including travelling) incurred by the consultant in attending the second test will be to the Contractor's account.

All fuel used for the test will be for the tenderers account.

The testing shall consist of, but not limited to the following:

- a) Simulate a mains failure to automatically start the plant from cold to test its ability to attain full rated speed and voltage and assume the full load in the specified time of ten seconds.

- b) Test run the plant at full load for a period of one hour.
- c) Immediately after the above specified run, without stopping the plant, run it for a further hour at 110 % load.
- d) Test the plant with regards to voltage dip, voltage and frequency recovery, with a sudden application of various loads.
- e) Test the plant for its ability to assume full rated load immediately on failure of the normal supply.
- f) Test and demonstrate (by simulation only where actual Conditions could damage the plant and its ancillary equipment) the correct operation of the engine safety controls and alarms together with other alarms as specified.
- g) Any other tests the client may consider necessary to establish that the diesel generator and its ancillary equipment as a whole is functioning correctly and in accordance with the specification.

NB The Contractor shall provide necessary instruments and equipment for carrying out the tests. The test equipment shall be capable of producing 100 % load for one hour and 110 % load for a further hour continuously without interruption. The test load shall be adjustable and balanced over three phases.

The instrumentation shall be capable of recording and producing printed data pertaining to transient voltage dips, recovery time, applied load, etc, as specified in Clause 9.5.

14.2. Tests On Site

On completion of the installation of the plant, the following test shall be carried out.

- a) Automatic starting and stopping with load change over. The load in this instance will be provided by the client.
- b) Test by simulation only of the operation of the engine protection and alarm devices.
- c) Any other tests which the Project Leader may require on site.

15. **NOTICES & LABELS**

15.1. Warning Notice

The Contractor shall provide and install in a conspicuous position in the plant room a clearly legible and indelible notice 450 x 450mm made from non-deteriorating material, preferably plastic with red letters on a white background worded to read as follows:

DANGER

THIS ENGINE WILL START WITHOUT NOTICE. TURN THE CONTROLLER OFF AND PRESS THE EMERGENCY STOP BUTTON IN BEFORE WORKING ON THE PLANT.

- 15.2 All labels shall be RED engraved letters on WHITE Ivorene glued with super glue or pop riveted to cover plates where applicable. Letter size shall be a minimum of 3mm.

16. **OPERATING AND MAINTENANCE MANUALS, ETC.**

The Contractor shall supply three complete comprehensive sets of operating and maintenance manuals complete with schematic control diagrams and complete spare parts list for both engine and generator.

The above manuals are to be handed to the authorized representative on completion of the installation.

In addition a complete schematic diagram of the power and control circuitry is to be mounted in a glass fronted wooden or non-ferrous metal frame and fixed **to the canopy door adjacent to the generator control panel.**

The Contractor is to provide a schedule containing particulars and part numbers of all major components e.g. relays, timers etc. of the control circuitry to facilitate the ordering of spares.

NOTE: Under no circumstances will **Practical Completion** be taken of the plant and equipment unless these requirements have been completed.

17. DRAWINGS

Within one month of the receipt of order the successful Tenderer shall submit prints of each of the following drawings for approval:-

- a) General arrangement of the stand-by plant switchboard front panel.
- b) Schematic of the complete electrical systems, including starter motor, battery and automatic battery charger.
- c) Dimensioned layout of all plant in **the canopy compartment.**

18. SPARE PARTS

Tenderers must **provide an assurance** with their Tender that spare parts for the plant offered by them as a whole are readily available within the Republic of South Africa and to state where these **spare parts** are available.

19. GUARANTEE AND MAINTENANCE

19.1. General

The Contractor shall guarantee and maintain the Contract Works for a period of twenty four months (24) after **Works Completion** of the plant. During the maintenance period the Contract Works shall be maintained as specified in Clause 21 by the Contractor and any defective material, equipment or workmanship (excepting proven, willful or accidental damage, or fair wear and tear) shall be made good with all possible speed at the Contractor's expense and to the satisfaction of the client.

19.2. Making Good

When called upon by the client the Contractor shall make good on site and shall bear all expense incidental thereto including making good of work by others, arising out of removal or reinstallation of equipment. All work arising from the implementation of the guarantee or maintenance of equipment shall be carried out at times which will not result in any undue inconvenience to users of the equipment or occupants of premises.

If any defects are not remedied within a reasonable time the client may proceed to do the work at the Contractor's risk and expense, but without prejudice to any other rights which the client may have against the Contractor.

19.3. Latent Defects and Failure to Comply with Specification

The client reserves the right to demand the replacement or making good by the Contractor at his own expense of any part of the Contract which is shown to have any latent defects or not to have complied with the Specification, notwithstanding that such work has been taken over or that the guarantee period has expired.

19.4. Qualification by Tenderer

Should any specified materials or equipment in the Tenderer's opinion be of inferior quality, or be unsuitably employed, rated or loaded, the Tenderer shall prior to the submission of his tender advise the consultant accordingly. His failure to do so shall mean that he guarantees the work including all materials or equipment as specified.

20. MAINTENANCE

At six monthly intervals during the guarantee period of twenty four months, starting from the date of Works Completion, the Contractor shall adjust and maintain the standby plant and its ancillary equipment in proper working order. As a minimum requirement the Contractor shall:

- a) Check and top-up if necessary, the fluid levels in the radiator, engine sump, fuel oil tank and batteries.
- b) Test run the standby plant and ancillary equipment for a period of 15 minutes.
- c) Wipe down the standby plant and its ancillary equipment and report on any evidence of any fluid leaks or other defects.
- d) Fill in the standby plant logbook.

The cost of such inspections, maintenance, adjustments, repairs, etc., shall be included in the tender price, but the cost of renewing any part which may become worn through fair wear and tear, or damaged beyond the control of the Contractor (provided this is not due to unsuitable design) shall be excluded.

If during the guarantee and maintenance period the standby plant is not in working order for any reason for which the Contractor can be held responsible, then the Contractor will be notified and immediate steps shall be taken by him to remedy the defects.

Should the standby plant defects be so frequent as to become objectionable or should the equipment otherwise prove unsatisfactory during the guarantee period of twelve months, the Contractor shall, if called upon by the client, at his own expense replace the whole or such parts thereof as the client may deem necessary with equipment to be specified by the client.

Approval - tacit or otherwise - of the equipment installed shall be considered as provisional only and shall not invalidate the client's right as indicated above.

**PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH**

BID No. ZNB

**DESIGN, MANUFACTURE, DELIVERY TO SITE, INSTALLATION AND COMMISSIONING OF 25
kVA EMERGENCY POWER GENERATOR WITH A WEATHER PROOF AND SOUND ATTENUATED
CANOPY TYPE EMERGENCY POWER GENERATOR INCLUDING ASSOCIATED ELECTRICAL
EQUIPMENT AND MINOR BUILDING WORK.**

PART THREE

PARTICULAR SPECIFICATION

3.1 GENERAL

This particular specification must be read with, and shall form part of, Part One (Project Specification) and Part Two of this document (Technical Specification).

In so far as the conditions contained herein are at variance with any obtained in the Technical Specifications, the contract shall be interpreted in terms of this Part Three (Particular Specification).

3.2 THE SITE

The site is the St Apollinaris Hospital adjacent to the Centocow Mission, in the Harry Gwala District. The altitude is approximately 1 200 Metres above sea level.

3.3 SCOPE OF WORKS

The contract comprises the design, manufacture, assembly, delivery to site, off-loading at site, installation, testing, commissioning and handing over in first class working order of a 25 kVA outdoor canopy type standby diesel generating sets and all ancillary equipment necessary to comply with the requirements of this specification.

The plant generally shall comprise unless otherwise stated, of a diesel engine coupled to an alternator mounted on a common base, a 72-hour fuel tank, a set of starting batteries, automatic charging unit, interconnecting cables, a control panel housing the generator M.C.C.B. and all necessary switchgear, including the change-over equipment.

The contractor shall also provide for the following:

- 1) Supply, delivery to site, installation and commissioning of a 105 kVA 400/230-volt sound attenuated outdoor canopy type generator set, including Deep Sea 7320 generator controller including auxiliary equipment as specified.
- 2) Construct a new reinforced concrete base of suitable strength on top of which the generating set will be located in a position.
Refer to Drawing No. 12005H-R1
- 3) Isolate, disconnect and remove from site existing 25mm² x 4 core cable non-essential supply cable from the existing DB non-essential section.
- 4) Supply, delivery, installation and commissioning of a new 25mm² x 4 core cable non-essential cable from the DB to the new generator control panel.
- 5) Supply, delivery, installation and commissioning of a new 25mm² x 4 core cable essential cable from the new generator control panel to the existing box and connect new cable to existing supply cable.

- 6) Trenching in soft rock including cable marking tape, concrete cable markers, backfilling and compaction.
 - 7) Supply and install new labelling in accordance with the DoH Policy document.
 - 8) Testing and issuing of Certificates of Compliance for each new installation.
 - 9) On-site testing and commissioning of the unit.
-
- 10) Servicing during 12 month guarantee period. (6 monthly intervals)
 - 11) O & M manuals – 3 sets per unit.
 - 12) Supply and delivery of type HA1 padlocks with keys.
 - 13) First fill of diesel fuel for the generator.
 - 14) Submission of an approved Safety Plan specifying type of work to be carried out.

4 SCHEDULE OF EQUIPMENT

The Schedule of equipment offered shall be fully completed by the Tenderer.

**DESIGN, MANUFACTURE, DELIVERY TO SITE, INSTALLATION AND COMMISSIONING OF 25
KVA EMERGENCY POWER GENERATOR WITH A WEATHER PROOF AND SOUND ATTENUATED
CANOPY TYPE EMERGENCY POWER GENERATOR INCLUDING ASSOCIATED ELECTRICAL
EQUIPMENT AND MINOR BUILDING WORK.**

GENERAL

Tenderers must complete the following schedule of information and are to submit with their Tender comprehensive literature on the equipment offered including countries of origin.

FAILURE TO COMPLETE AND SIGN THIS SCHEDULE IN ITS ENTIRITY SHALL LEAD TO DISQUALIFICATION OF THE BID.

DIESEL ENGINE

DIESEL ENGINE

- a) Make and Model
- b) Type (two or four stroke).....
- c) Performance Parameters
 - i) Rated output at sea level: Prime Power:kVA / kW.
Standby Power.....kVA / kW.
 - ii) Rated output atmetres above sea level (Altitude of hospital/Institution)
Prime PowerkVA / kW.
Standby Power.....kVA / kW.
 - iii) Ambient air temperatures atmetres above sea level (Altitude of hospital/Institution)
Minimum °C.....
Maximum °C.....
- d) Governed speedRPM
- e) Number of cylinder
- f) Diameter of cylindersmm
- g) Stroke of pistonmm
- h) Piston speedm/minute
- i) Type of air cleaner
- j) Type of lubricating oil filter
- k) Make and type of injection system
- l) Type and number of fuel filters
- m) Manufacture and type of turbo-charger
- n) Manufacturer and type of governor
- o) Max cyclic variations

- p) Speed variation for sudden release or application of load:
 - i) Temporary
 - ii) Permanent
- q) 100% Rated full load may be applied seconds after initiation of starting sequence
- r) Specific fuel consumption at full load. Litres/ HR (submit curves)
- s) Air quantity required for engine cooling cu.m/min.
- t) Cross sectional area of radiator air discharge outlet

STARTING BATTERY

- a) Manufacturer
- b) Type
- c) Capacity.....
- d) Voltage.....

ALTERNATOR

- a) Make
- b) Type
- c) Type of bearings
- d) Method of lubrication
- e) Rated load at 0.8 power factor at 400 / 230 volt 50Hz 3 Phase
 - i) Continuous rating kVA Amps.....
- f) Efficiency of alternator at full load
- g) Output voltage within governed speed range at
 - i) No loadVolts
 - ii) 50% loadVolts
 - iii) 100% load Volts
 - iv) 110% load Volts
- h) Method of voltage regulation

CONTROL CUBICLE

- a) Manufacturer
- b) Dimensions of control cubicle: Length.....mm
 Width.....mm
 Height.....mm
- c) Type of control equipment
- d) Type, make and rating of 4 pole by pass switch
- e) Type, make and rating of 4 pole motorised change-over switch
- f) Rupturing capacity at rated voltage of main circuit.....KA
- g) Method of tripping employed in main circuit breaker
- h) Range of load setting of main circuit breaker
- i) Electrical and mechanical interlock provided: YES..... NO..... TYPE

VOLTMETER

- a) Make and type
- b) Dial dimensions
- c) B.S.S. accuracy

MAXIMUM DEMAND AMMETERS

- a) Make and type
- b) Dial dimensions
- c) Time lag
- d) B.S.S. accuracy

FREQUENCY METER

- a) Make and type
- b) Dial dimensions
- c) B.S.S. accuracy

SELF BUNDED FUEL TANKS

- Base tank size
- Base Tank manufacturer and model number
- Bulk tank size (If applicable)
- Bulk tank manufacturer and model number

EXHAUST

- Exhaust material
- Exhaust material, silencer and outlet pipe

MASS OF PLANTkg

OVERALL DIMENSIONS OF PLANT

- Length
- Height
- Width

TYPE AND RATING OF EQUIPMENT TO BE USED FOR LOAD TESTS

.....

COMPANY NAME AND ADDRESS OF BULK TANK INSTALLATION

.....
.....

IS THE TENDERER A DIESEL GENERATOR SET MANUFACTURER WITH LOCAL MANUFACTURING AND BACKUP FACILITIESYES / NO.....

IS THE TENDER 100% TO SPECIFICATIONYES / NO.....

If the answer is NO, provide reasons for the deviation from the specification.

DATE..... SIGNATURE OF TENDERER.....

COMPANY STAMP

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH

BID No. ZNB _____

**DESIGN, MANUFACTURE, DELIVERY TO SITE, INSTALLATION AND COMMISSIONING OF 25
KVA EMERGENCY POWER GENERATOR WITH A WEATHER PROOF AND SOUND ATTENUATED
CANOPY-TYPE EMERGENCY POWER GENERATOR INCLUDING ASSOCIATED ELECTRICAL
EQUIPMENT AND MINOR BUILDING WORK.**

PART FOUR

SCHEDULE OF PRICES

PREAMBLE TO SCHEDULE OF PRICES

Items and Pricing

The Department reserves the right to place an order for any quantities of items included in the Schedules. The Schedule of Rates must also not be assumed to include and describe every detail of the supply requirement, but must be taken and read in conjunction with the other parts of the document. Thus the supplier shall not have claim for further payment in respect of any order which may be described or implied in the contract, although apparently no corresponding items are given in the Schedule of Rates. The supplier shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the contract and of the rates and prices stated in the Schedule of Rates.

Tax and Duties

Prices, tendered and paid, must include all customs, excise and import duties, and any other tariffs or taxes levied by the government or statutory body having jurisdiction on the goods provided under this contract, **including Value Added Tax (applicable to the current rate).**

Rates

Except where provision is made in the Schedule of Rates, the rates and prices inserted shall be the full rates and prices for the service delivered described under the respective items and shall cover all labour, transport, overhead charges and profit, etc. as well as the general liabilities, obligations and risks arising out of the Conditions of Contract, the overhead charges and profit being spread proportionately over the rates of the relative items in the Schedule of Rates.

PART FOUR - SCHEDULE OF PRICES

| ITEM | DESCRIPTION | QTY | UNIT | RATE | TOTAL |
|-------------------------------|---|-----|------|------|-------|
| 4.1 | Supply, delivery to site, installation and commissioning of a 25 kVA 400/230-volt sound attenuated weatherproof outdoor canopy type generator set, including Deep Sea 7320 generator controller as specified. | 1 | Each | | |
| 4.2 | Supply, install and commission Deep Sea DSE Webnet DSE 890 Gateway complete with a GPS antennae and a GSM antennae. | 1 | Each | | |
| 4.3 | Supply Data SIM card pre-loaded with an adequate data bundle for reporting module in Item 4.2 above. Data shall be valid for the entire duration of the Two year (24 months) Warranty Period. | 1 | Each | | |
| 4.4 | Construct a new reinforced concrete base of suitable strength on top of which the generating set will be located in a position. Refer to Drawing No. 12005H-R1 | 1 | Each | | |
| | | | | | |
| | | | | | |
| Carry over to Price Page PS 1 | | | | | R |

| ITEM | DESCRIPTION | QTY | UNIT | RATE | TOTAL |
|-------------------------------|---|-----|------|------|-------|
| 4.5 | Isolate, disconnect and remove from site existing 25mm ² x 4 core cable non-essential supply cable from the existing DB non-essential section to the existing generator. | | Item | | |
| 4.6 | Supply, delivery, installation and commissioning including terminations of a new 25mm ² x 4 core cable non-essential cable from the DB to the new generator control panel. Only the use of C.C.G or Pratley Glands and shrouds shall be permitted. All terminations shall be done with the use of hydraulic crimping tools only. | 60 | m | | |
| 4.7 | Trenching in soft rock including cable marking tape, concrete cable markers, backfilling and compaction. | 40 | m | | |
| 4.8 | Trenching in soft rock including cable marking tape, concrete cable markers, backfilling and compaction. | 40 | m | | |
| 4.9 | Trenching in soft rock including cable marking tape, concrete cable markers, backfilling and compaction. | 40 | m | | |
| | | | | | |
| Carry over to Price Page PS 2 | | | | R | |

| ITEM | DESCRIPTION | QTY | UNIT | RATE | TOTAL |
|--------------------------------------|--|------|--------|----------|-------|
| 4.10 | Supply and install new labelling in accordance with the SANS 10142-1 Wiring Code as well as the KZN DoH Policy document. | | Item | | |
| 4.11 | Testing and issuing of Certificates of Compliance for each new installation in accordance with the SANS 10142-1 Wiring Code. | | Item | | |
| 4.12 | On-site testing and commissioning of the unit. | | Item | | |
| 4.13 | Servicing during 24 month Warranty period. (6 monthly intervals) | 4 | Each | | |
| 4.14 | O & M manuals – 3 sets per unit. | 3 | Each | | |
| 4.15 | Supply and delivery of type HA1 padlocks with keys. | 3 | Each | | |
| 4.16 | First fill of diesel fuel for the generator. | 1600 | litres | | |
| 4.17 | Supply and installation of all labelling in accordance with the DoH Electrical Policy Document Rev 7 2013 | | Item | | |
| 4.18 | Submission of an approved Safety Plan specifying type of work to be carried out. | | Item | | |
| 4.19 | | | | | |
| 4.20 | | | | | |
| Carry over to Price Page PS 3 | | | | R | |

FOR IMPORTED ITEMS:

STATE ITEM NUMBER/S:- _____

State the applicable foreign exchange rate 14 days prior to closing date of quotation here: _____

PRICE PAGE

N.B.: This form must be completed in detail signed by the Bidder and bears the signature of a witness.
 Failure to comply with these requirements may result in the bid being disregarded.

CLOSING DATE AND TIME: _____ at 11:00.

VALIDITY PERIOD: _____ **DAYS**

| | | | |
|---|--|--|--|
| BID/CONTRACT NO: _____ | | PERIOD: _____ | |
| DESIGN, MANUFACTURE, DELIVERY TO SITE, INSTALLATION AND COMMISSIONING OF 25 kVA EMERGENCY POWER GENERATOR WITH A WEATHER PROOF AND SOUND ATTENUATED CANOPY TYPE EMERGENCY POWER GENERATOR INCLUDING ASSOCIATED ELECTRICAL EQUIPMENT AND MINOR BUILDING WORK. | | NAME AND ADDRESS OF BIDDER(FIRM) TEL:..... FAX:..... | |
| | | DOES OFFER COMPLY WITH THE SPECIFICATION? <i>If not, furnish details of deviation in space provided for "Remarks"</i> | |
| CONTRACT EXECUTION PERIOD | | YES/NO (Delete which is not applicable) | |
| CARRIED OVER FROM SCHEDULE OF PRICES PS 1 | |weeks/months | |
| PS 2 | | | |
| PS 3 | | | |
| Subtotal : PS 1 to PS 3 | | R | |
| VALUE ADDED TAX @ 15% * * (Rate applicable on date of submission of Bidder) | | R | |
| TOTAL BID PRICE | | R | |
| REMARKS (If any): | | (Signature of Bidder) DATE: (Signature of Witness) DATE: | |