# TENDER SPECIFICATION

**BHEL:PSSR:SCT: 1173**

**FOR**

Construction of 1 No office shed of size 12 M x 32M, 2 Nos Closed store shed of size 15 x 60 M, 2 Nos Closed Store Shed of size 12 x 32 M including fencing around storage yard and Electrification

**at**

Neyveli Thermal Power Station Expansion

**Unit 2 x 250 MW**

**Neyveli, Cuddalore Dist. Tamilnadu.**

## PART – I TECHNICAL BID

**BOOK NO :**

**BHARAT HEAVY ELECTRICALS LIMITED**
(A Government of India Undertaking)
Power Sector – Southern Region
690, Anna Salai, Nandanam, Chennai – 600 035.

# TENDER SPECIFICATION BHEL:PSSR:SCT: 1173

## INDEX

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

Tender Specification No. BHEL:PSSR:SCT: 1173

Messrs Date:

Dear Sir,

SUB: Construction of 1 No office shed of size 12 M x 32 M, 2 Nos Closed store shed of size 15 x 60 M, 2 Nos Closed Store Shed of size 12 x 32M including fencing around storage yard and Electrification at Neyveli Lignite Corporation Limited., Neyveli, Cuddalore Dist., Tamilnadu

Please find enclosed one set of non-transferable tender documents containing **70** pages along with general conditions of contract Booklet and Drawings for the above work.

You are requested to go through the tender documents, GCC Booklet and Drawings and offer your most competetitive rate and submit the tender documents duly filled in as per procedure indicated in the tender specification along with requisite EMD of Rs.2,00,000/- (Rupees Two Lakh only) in the form Demand Draft. Bids with Deviations from the tender conditions will be rejected.
A SEPARATE LETTER SHALL BE FURNISHED INDICATING THAT THERE ARE NO DEVIATIONS FROM THE TENDER CONDITIONS (As in Page 8.)

The completed quotations shall reach the office of the under signed on or before **04.04.2006** at 15.00 Hrs. The Technical bids, will be opened on the same day at 15.30 hrs.

**ANY REVISION OF RATES / PRICES WHAT SO EVER AFTER THE TIME AND DATE MENTIONED IN TENDER SPECIFICATION FOR SUBMISSION OF COMPLETED QUOTATIONS SHALL NOT BE ENTERTAINED UNLESS CALLED FOR SPECIFICALLY BY BHEL.**

After opening of technical bids, only after ascertaining the submission of "No deviation Declaration" by the bidders, price Bids of only parties who have furnished the no Deviation Declaration certificate will be opened.

You are requested to depute your authorized representative at the time of opening.

In case you are not participating in this tender , you may return the document immediately.

Kindly note that BHEL reserves the right to reject any or all tenders without assigning any reason.

Thanking you,

Yours faithfully,
For and on behalf of
BHARAT HEAVY ELECTRICALS LIMITED

Sr. Deputy GENERAL MANAGER / CONTRACTS

Place : Chennai -35

Date:

Encl: One set of Tender documents along with GCC Booklet and drawings.

BHARAT HEAVY ELECTRICALS LIMITED
(A government of India undertaking)
Power Sector : Southern Region
690, Anna Salai, Nandanam, Chennai – 600 035.

## SPECIAL INSTRUCTIONS TO BIDDERS

The Bidder must submit their bids as requested in a sealed cover prominently superscribing the Tender Specification number, due date and time of submission as mentioned in the **TENDER NOTICE**.

The following information shall be furnished by the Bidder along with their offer (Technical Bid cover)

01. Details of previous experience during the last five years indicating contract value, duration, completion period and present engagement as per G.C.C.

02. Organisation structure of the Company as per GCC.

03. Financial status of the firm enclosing balance sheet and profit and loss account for the past 3 years and certificate from the Company's Banker as per G.C.C

04. Turnover of the Company in last 3 Financial years pertaining to this scope of work only.

05. Latest Income Tax clearance certificate.

06. BIO DATA of key personnel presently in the Rolls of the company and proposed site organization for carrying out the work including deployment of Engineers and Supervisors.

07. Declaration sheets as per Appendix of Tender Specification.

08. Checklist and Schedule of General particulars as per Appendix in GCC.

09. T & P owned/deployment details as per G.C.C.

10. Technical manpower deployment details as per G.C.C

11. Other relevant details as per GCC and checklist.

**12. THE BIDDERS ARE REQUESTED TO FURNISH THE DOCUMENTS LIKE COPIES OF LOI'S, WORK ORDER'S ETC PERTAINING TO THE EXPERIENCE INDICATED IN QUALIFYING REQUIREMENTS, AS GIVEN BELOW.**

**13. QUALIFICATION REQUIREMENT**

a) The bidders should have executed building works or any other civil works in last seven years.

b) The bidders should have a minimum average financial turn over of Rs.**130** Lakhs per year in the preceding three financial years ending 31st March 2005.

The Bidder must have earned profit in any one of the last three financial years ending 31.03.2005 and should have positive net worth as on 31.03.2005.

Bidder should submit audited balance sheet and profit & loss account of the company for last three years ending 31.03.2005 in support of above requirement.

c) Notwithstanding the above, BHEL reserves the right to reject any Tender or all the Tenders for reasons whatsoever beyond our control and the decision of BHEL is final.

LD / Penalty shall be leviable as per the applicable clauses of GCC.

14. TENDERERS HAVE TO FURNISH A DECLARATION SHEET INDICATING THAT THERE IS NO DEVIATION FROM THE TENDER DOCUMENTS (AS IN PAGE 8). TENDERERS MAY FURTHER NOTE THAT THIS DECLARATION IS A PREREQUISITE FOR BHEL TO CONSIDER THEIR BIDS. BIDS SUBMITTED WITHOUT "**NO DEVIATION DECLARATION"** WILL BE REJECTED BY BHEL.

**15. SAFETY PLAN**

Bidder may further note that the submission of safety plan is a prerequisite for BHEL to consider their bids.

BHARAT HEAVY ELECTRICALS LIMITED
(A government of India undertaking)
Power Sector : Southern Region
690, Anna Salai, Nandanam, Chennai – 600 035.

# PROCEDURE FOR SUBMISSION OF SEALED BIDS

The Tenderers must submit their bids as required in two parts in separate sealed covers prominently superscribed as Part I "Technical Bid" and Part II "Price Bid" and also indicating on each of the covers the tender specification number and due date and time as mentioned in the Tender Notice.

Part I (Technical Bid) Cover I

Excepting Rate Schedule, all other schedules, data sheets and details called for in the specification shall be enclosed, in part I Technical Bid only.

Part II (Price Bid) Cover II

All indications of price shall be given in this part II Price Bid.

Tenderers are requested to quote their rates, only in the price bid (part II) provided by BHEL. Quoting of rates in any other form / formats will not be entertained.

These two separate cover I & II (Part I and Part II) shall together be enclosed in a third envelope (Cover III) along with requisite EMD as indicated and this sealed cover shall be superscribed and submitted to Senior Deputy General Manager/Contracts at the above mentioned address before the due date as indicated. The Tenderers will be intimated separately in case any clarifications are required.

NOTE:

Tenderers are issued with 2 Nos. of Technical Bids, 2 Nos. of Price Bids and 2 Nos. of GCC booklet., out of which one set of each document shall be retained by them for their reference. Balance one set shall be submitted along with their offer as per procedure indicated above.

**ANY REVISION OF RATES / PRICES WHAT SO EVER AFTER THE TIME AND DATE MENTIONED IN TENDER SPECIFICATION FOR SUBMISSION OF COMPLETED QUOTATIONS SHALL NOT BE ENTERTAINED UNLESS CALLED FOR SPECIFICALLY BY BHEL.**

Sr. Deputy General Manager/Contracts.

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

# TENDER NOTICE

Tender Specification No. BHEL:PSSR:SCT:1173

| Description | EMD |
|---|---|
| Construction of 1 No office shed of size 12 M x 32 M, 2 Nos Closed store shed of size 15 x 60 M, 2 Nos Closed Store Shed of size 12 x 32M including fencing around storage yard and Electrification at Neyveli Lignite Corporation Limited., Neyveli, Tamilnadu. | Rs. 2,00,000/- (Rupees Two Lakh only) |

| | | | |
|---|---|---|---|
| Cost of Tender Documents (Including all Taxes) | : | Rs.1105/- | |
| Sale Starts on | : | 13.03.2006 | |
| Sale closes on | : | 03.04.2006 | |
| Due date and Time for Submission | : | 04.04.2006 | 15.00 Hrs. |
| Date and time for opening Of Technical Bids | : | 04.04.2006 | 15.30 Hrs |

**QUALIFICATION REQUIREMENT**

a) The bidders should have executed building works or any other civil works in last seven years.

b) The Bidder should have a minimum average financial turnover of Rs.**130** lakhs per year in the preceding three financial years ending 31st March 2005.

The Bidder must have earned profit in any one of the last three financial years ending 31.03.2005 and should have positive net worth as on 31.03.2005.

The bidders should submit audited balance sheet and profit & loss account of the company for last three years ending 31.03.2005 in support of above requirement.

**c) Notwithstanding the above, BHEL reserves the right to reject any Tender or all the Tenders for reasons whatsoever beyond our control and the decision of BHEL is final.**

LD / Penalty shall be leviable as per the applicable clauses of GCC.

Interested parties can get the Tender documents from the office of the Senior Deputy General Manager / Contracts on all working days by remitting the cost of tender documents either by Cash or A/c Payee Demand Draft drawn in favour of M/s. Bharat Heavy Electricals Limited, Chennai – 600 035. Money order, Cheques and Postal Orders will not be accepted.

The Bharat Heavy Electricals Limited takes no responsibility for any delay, loss or non-receipt of tender documents sent by post and also reserves the right to reject any or all the tender without assigning any reason therefor. **TENDER NOT ACCOMPANIED BY THE PRESCRIBED EARNEST MONEY DEPOSIT ARE LIABLE TO BE SUMMARILY REJECTED.**

SENIOR DEPUTY GENERAL MANAGER/CONTRACTS

*TENDER SPECIFICATION : BHEL:PSSR:SCT:1173*

*CERTIFICATE FOR NO DEVIATION*

*I,_____ Of*

*M/s_____*

*hereby certify that there is no deviation from the Tender conditions either technical or commercial and I am agreeing to all the terms and conditions mentioned in the Tender Specification.*

*SIGNATURE OF THE TENDERER*

# OFFER OF CONTRACTOR

Senior Deputy General Manager/Contracts
Bharat Heavy Electricals Limited,
Power Sector : Southern Region
690, Anna Salai,
Nandanam,
Chennai – 600 035.

Sir,

I/We hereby offer to carry out the work detailed in Tender Specification No.BHEL:PSSR:SCT:1173 issued by Bharat Heavy Electricals Limited, Power Sector : Southern Region, in accordance with the terms and conditions thereof.

I/We have carefully perused the following documents connected with the above work and agree to abide by the same.

1. Instructions to Tenderer
2. General Conditions of Contract
3. Special conditions of Contract
4. Other Section, Appendices and Schedules

I/We have deposited/forwarded herewith the Earnest Money Deposit/a sum of Rs.2,00,000/- (Rupees Two Lakhs only) vide DD.No. Dt. which shall be refunded should our offer not be accepted. Should our offer be accepted, I/We further agree to deposit such additional sum which along with the sum of Rs.2,00,000/- ( Rupees Two Lakhs only) mentioned above, to make up the Security Deposit for the work as provided for in the Tender Specification within the stipulated time as may be indicated by BHEL, Power Sector : Southern Region, Chennai – 600 035.

I/We further agree to execute all the works referred to in the said documents upon the terms and conditions obtained or referred to therein and as detailed in the appendices annexed thereto.

DATE: CONTRACTOR:

PLACE: ADDRESS:

Witness with their address

Signature Name Address

# PROJECT INFORMATION

| | | | |
|---|---|---|---|
| 1. | OWNER/PURCHASER | : | Neyveli Lignite Corporation Limited |
| 2. | Consultant | : | TCE Consulting Engineers Limited<br>Sheriff Centre<br>73/1 St Mark's Road<br>Bangalore - 560001 |
| 3. | Project Title | : | 2 x 250 MW TS-II Expansions. |
| 4. | Location | : | Neyveli in the state of Tamilnadu in India, located at 200 km from Chennai |
| 5. | Nearest Railway station | : | Neyveli on Vridhachalam-Cuddalore broad gauge link of Southern Railway of India. |
| 6. | Site elevation | : | 34.0 to 42.0 m above mean sea level. |
| 7. | Access Road | : | 5.0 km from Vridhachalam- Cuddalore road and 15.0 km from Chennai - Tanjore State Highway. |
| 8. | Nearest Airport | : | Chennai |
| 9. | Nearest Sea port | : | Chennai |
| 10. | Latitude of site | : | 11 deg 32 minutes and 30 seconds |
| 11 | Longitude of site | : | 79 deg 26 minutes and 30 seconds |
| 12 | Metrological data | : | Weather data of Neyveli from the period 1982 to 2001 indicates the following : |

| | | | | |
|---|---|---|---|---|
| a) | **Temperature** | : | | |
| i) | Average Max . Temp | : | 39.4 deg. C | |
| ii) | Average Minimum temp | : | 18.9 deg. C | |
| iii) | Highest Maximum temp | : | 42.8 deg. C | |
| iv) | Lowest Minimum temp | : | 15.6 deg. C | |
| v) | Temperature to be considered for design of electrical | : | 50 deg C | |

equipment/devices

b) Relative humidity

i) Maximum : 100%

ii) Minimum : 14 %

iii) Average : 63 %

c) Rainfall

i) Annual variation : 676.2 mm to 1856.3 mm

ii) Average annual RF : 1203.90 mm

d) Wind Data

Basic wind speed : 50 m/sec as per IS 875(Parts) - 1987

i) $K_1$ : 1.08

ii) $K_2$ : As per terrain Category -3

iii) $K_3$ : 1.0

13) Languages Spoken in the Region : English, Tamil

14) Official language for the bidder to deal with : English

15) Tropicalisation : All equipment supplied against this specification shall be given tropical and fungicidal treatment in view of climatic conditions prevailing at site.

16) Cooling water temperature

a) Design temperature for condenser inlet : $36^0$C

b) Maximum temperature at condenser inlet : $41^0$C

| | | | | |
|---|---|---|---|---|
| | c) | Design temperature for heat exchanger | : | $40^0$C |
| 17) | Seismic data | | : | As per IS: 1893 - 2002 |
| | a) | Zone | : | II |
| | b) | Zone factor-Z | : | 0.04 |
| | c) | Importance factor (I) | : | 1.50 |
| 18.0 | | Auxiliary power supply | : | Auxiliary electrical equipment to be supplied against this specification shall be suitable for operation on the following supply system. |
| | (a) | For motors rated above 160 kW | : | 6600V, 3 phase, 3 wire, 50Hz (Medium resistance earthed) |
| | (b) | For motor rated below 160 kW | : | 415V, 3 phase, 4 wire solidly earthed AC |
| | (c) | DC. motor starters, DC solenoids, DC alarm, control and protections | : | 220 V DC, 2 wire, unearthed DC |
| | (d) | AC control & protective devices | : | 110 V, 1 phase, 50Hz, 2 wire AC supply. The single-phase 110V AC supply shall be derived by CONTRACTOR BY PROVIDING 415V/ 110V control transformers of adequate rating with MCCB /MCB on both the primary and secondary sides. |
| | (e) | Uninterrupted power supply | : | 110 V, 1 phase, 50Hz, 2 wire AC supply |

| | | | |
|---|---|---|---|
| (f) | AC solenoids, space heaters (for motors rated 30KW and above) | : | 240V, 1 phase, 2 wire, 50Hz AC system with effectively earthed neutral. The power supply shall be derived by CONTRACTOR by providing 415V/ 240V transformer of adequate rating with MCCB/MCB on primary/secondary sides. |
| (g) | Solid state controls (including solenoid valves) | : | 24 V DC, 2 wire, supply from (24V DC supply derived from 110 V AC UPS supply) |
| (h) | Lighting fixtures | : | 240 V, 1 phase, 2 wire, 50Hz earthed AC system. |
| (i) | Lighting fixtures and space heaters in panels | : | 240 V, AC 1 phase, 2 wire, 50Hz earthed AC system. |

(j) The above voltages may vary as follows :

All devices shall be suitable for continuous operation over the entire range of voltage and frequency indicated below without any change in their performance.

| | | | |
|---|---|---|---|
| i. | AC supply | : | Voltage variation ±10%<br>Frequency variation ± 5%<br>Combined voltage & frequency variation ± 10% |
| ii. | DC supply | : | Voltage variation +10%<br>-15% |

## 19.0 WRITEUP ON METEOROLOGICAL DATA FOR NEYVELI

### (I) Meteorological Data

The study of the weather data available for the last 20 years for Neyveli (1982 to 2001) indicates the following:

a. **Temperature:**

The monthly average maximum and minimum temperatures have generally a cyclic fluctuation depending on the seasons, with a progressive rise between December and May and a similar from May to December. The average maximum temperature was 39.4 °C. and the average minimum 18.9 °C. The highest recorded temperature was 42.8 °C in April 1985 and May 1989 and the lowest minimum temperature was 15.6 degree C. in February 1989.

b. **Evaporation Rate and Relative Humidity:**

The Evaporation Rate is high during summer months (May) and low in December. During the period the maximum, minimum and annual evaporation rates are 2576.4mm (1982), 1150.6mm(2000) and 1693.3mm respectively. The relative humidity is 14% to 96% during summer and 23% to 100% during winter. The maximum and minimum relative humidity recorded are 100% and 14%.

c. **Wind Velocity**:

The monthly average Wind velocity varies generally from 1.7 to 11.8Km/Hr. The maximum velocity is 118.8 Km/Hr as recorded in December 1993 (04.12.1993). Cyclonic weather is encountered almost every year during monsoon periods.

d. **Rainfall**:

The area gets rainfall both due to southwest monsoon (July - September) and North East monsoon (October - December). The per day intensity of rainfall due to northeast monsoon is generally higher than that of the southwest monsoon.

The annual rainfall for the period varies from 676.2 mm (1982) to 1856.3 mm (1996) and the average for the period is 1203.9 mm. The total number of rainy days varies from 37 to 67days in a year. Average number of rainy days 56 days per year. 75% of the rainy days are less than 25mm, 16% of the rainy days are 25mm to 50mm, 8% of the rainy days are 50mm to 100mm and only 1% of the rainy days are above 100mm. The maximum rainfall of 341mm was recorded on 23.12.1983. The precipitation due to South West and North East monsoons is of cyclonic nature and attributable to series of depressions, which develop in the Bay of Bengal and Indian Ocean.

## Section III

## Common Conditions of Contract

### 3.1 Scope of contract

3.1.1 The Contractor shall carry out the work in accordance with instructions/drawings/specifications/standard

3.1.2 Provisions of all types of labour, supervisors, watch and ward as required, tools and tackles as required consumables as required under various clauses of Tender Specifications.

3.1.3 Completion of work in time

3.1.4 Good quality and accurate workmanship.

### 3.2 FACILITIES TO BE PROVIDED BY BHEL

3.2.1 Open space for construction of temporary office & storage shed will be provided by BHEL and contractor has to make his own arrangements for his labour tenements.

3.2.2 **ELECTRICITY**

For construction purpose, Electricity will be provided free of charge at single point. Further distribution shall be arranged by the contractor for the site requirement at his cost .However the initial power supply to be arranged by the contractor for a period of one month from the start of work at their cost till BHEL makes arrangement.

The required power generating sets (DG Sets) with fuel and other consumables shall be arranged by the contractor at his cost, and the operation and maintenance of the same shall be borne by the contractor.

3.2.3 BHEL is not responsible for any loss or damage to the contractor's equipment as a result of variation in Voltage / frequency or interruptions in power supply.

**3.2.4 WATER**

For Construction and drinking purpose water will be provided at one single point free of charge as provided by customer to BHEL. Further distribution shall be arranged by the contractor at

his cost. However , initial water supply will be arranged by contractor for a period of one month from the start of work at their cost till BHEL makes arrangement. Contractor has to provide / arrange for sufficient required quantum of water for continuous operation without any stoppage. The required water storage containers shall be arranged at the site by the contractor. Water should not be a shortage for construction purposes and as well as for curing. No structure should get damaged because of lack of curing. Any damage caused because of this, BHEL decision in charging a lump sum amount deduction is final. Contractor has to put enough number of people for curing as decided by the BHEL Engineer. Decision of BHEL Engineer is final.

### 3.2.5 TOOLS & TACKLES

BHEL will not provide any tools and plants for the execution of this work. The contractor shall provide tools, plants at his cost.

### 3.2.6 MATERIALS

All the materials that are necessary for the satisfactory completion of work including cement, reinforcement steel, structural steel, aggregates etc shall have to be arranged by the contractor at his own cost.

### 3.2.7 CONSUMABLES:

All the necessary consumables that are necessary for the satisfactory completion of work including oxygen/Acetylene, electrodes etc. shall have to be arranged by the contractor at his cost.

## 3.3 FACILITIES TO BE PROVIDED AND DEVELOPED BY THE CONTRACTOR AT HIS COST.

3.3.1 It shall be the responsibility of the contractor to construct his own office shed, with all facilities like electricity, water supply, sanitary arrangements in the area allotted to him for the purpose.

3.3.2 Distribution of water for construction purpose by arranging storing sumps or tankers and as well as drinking purposes, shall be contractor's responsibility and at his cost.

3.3.3 Provision and distribution of electrical power to the required places with proper distribution boards approved cables and cable laying including supply of all materials like cables, switch boards, pipes etc., observing

the safety rules laid down by electrical authority of the State/BHEL/their customer with appropriate statutory/requirement.

3.3.4 Adequate lighting facilities such as flood lamps and hand lamps and area lightings shall be arranged by the contractor at the site of construction, contractor's material storage area, etc., at his cost.

3.3.5 On completion of work, all the temporary buildings, structures, pipelines, cables etc., shall be dismantled and leveled and debris shall be removed as per instructions of BHEL by the Contractor at his cost. In the event of his failure to do so, the expenditure towards the clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.

## 3.4 SUPERVISORY STAFF AND LABOUR

3.4.1 The contractor shall engage all the unskilled and specially skilled labour including brick masons, carpenters, plumbers, electricians, fabricators and fitters etc., and supervisory staff. Only trained and competent personnel with previous experience in the job shall be employed. However, BHEL reserves the right to decide on the suitability of the workers and other personnel who will be employed by the contractor. BHEL reserves the right to insist on removal of any employee of the contractor at any time, if found unsuitable, the contractor shall remove him immediately.

3.4.2 All the materials like steel bars, steel wires, steel Pipes, Steel Flats, bricks, cement, sand, doors & windows for office shed, painting materials, putty, glazing tiles etc., shall be arranged by the contractor as per the specification mentioned in Tender/Indian standard specification. The contractor is required to quote item rates for construction of office shed, Storage shed, civil and electrical works inclusive of cost of materials, labour etc. BHEL reserves the right to inspect and reject any material/work not found satisfactory.

## 3.5 GENERAL

3.5.1 During execution of the job, it is very essential that proper and adequate inspection should be made constantly by the contractor to maintain quality of workmanship and to ensure that deviations from the BHEL drawings not exceed the permissible limits, which shall be approved by BHEL.

3.5.2 The contractor shall visit the site and ascertain the local conditions, entry and traffic restrictions, all construction in the area and also ascertain all site conditions and particularly the sub soil conditions etc. The contractor shall allow for extras likely to the incurred due to such condition and no extra claim shall be entertained on this account under any circumstances from the contractor.

3.5.3 The contractor shall provide and maintain at his own cost pumps and other equipment to keep the works free from water and continue to do so until handing over of the work. The contractor shall clear all trees, rubbish, vegetation, rod, brickbats etc., and dispose them suitably in allotted areas at his own cost.

3.5.4 The contractor shall take adequate precautions to ensure complete safety and prevention of accidents at site. The safety precautions shall confirm to IS codes wherever applicable.

3.5.5 The contractor shall level the site in accordance with the sequence of earth levelling as shown in the drawings or as directed by the Engineer at his own cost.

3.5.6 Wherever blasting is essential the contractor has to carry out the same at his own cost.

3.5.7 The items though not specifically mentioned either in the drawings or in the tender specifications/rate schedule but are needed to complete the constriction of office cum storage shed as stipulated under the specifications are also to be erected to entire satisfaction of BHEL Engineer and as per IS specification.

3.5.8 The detailed drawings and specifications will form part of the tender documents. BHEL reserves the right to modify/alter the tender drawings, if necessary and the price will remain firm as per item rates quoted.

3.5.9 The contractor shall submit the labour and staff strength (skill wise) details to Engineer in charge every month and promptly notify whenever variation occurs.

## 3.6.0 PROGRESS OF WORK

During the course of erection, if the progress is found unsatisfactory or if the target dates fixed from time to time for every milestone are to be advanced, or in the opinion of BHEL, if it is found that the skilled workman like, Masons, Carpenters, Electricians etc., employed are not sufficient, BHEL will induct required additional workmen to improve the progress and recover from the contractors bills, all charges incurred on this account including all expenses together with BHEL overheads.

The progress reports shall indicate the progress achieved against planned with reasons indicating delays if any, shall also furnish in detail the reason for the same and shall give remedial action which the contractor intends to take to make good the slippage on lost time, so that further works can proceed as per the original programme and the slippage do not accumulate and affect the overall programme.

The contractor shall submit daily, weekly and monthly progress reports, manpower reports, material reports, consumables report and other reports considered necessary by the engineer.

The manpower reports shall clearly indicate the manpower deployed category-wise daily, specifying also the activities in which they are engaged. The periodicity of the reports will be decided by BHEL engineer at site.

The contractor shall arrange for weekly progress review meetings with engineer at site during which actual progress during the week vis-à-vis scheduled programme shall be discussed for action to be taken for achieving targets. The programme for subsequent week shall also be presented by contractor for discussions. The contractor shall constantly update/revise his work programme to meet the overall requirement and suit the material availability.

The contractor shall submit detailed monthly plan after discussion with BHEL Engineer and the same has to be forwarded by the first week of the month (working month or calendar month).

**3.7.0 SAFETY**

a. T & P used by contractor should be tested quality bearing ISI marks. Necessary test certificates to be produced by the contractor for all the T & P received by him at site for acceptance by BHEL Engineer. BHEL will reject any T & P without IS test certificate and the same cannot be utilized on job.

b. Only trained and experienced personnel to be used on the job. Signaling for rigging operations must be given by workers who are possessing required skill and experience in handling materials.

**3.8.0** Contractor shall strictly follow all safety conditions as per Clause 2.15 and its sub clauses of G.C.C. Booklet.

**3.9.0** Non-conformity of safety rules and safety appliances will be viewed seriously and the BHEL has right to impose fines on the contractors as under:

| S.No | Safety | Fine ( Rs) |
|---|---|---|
| 01 | Not wearing safety helmet | 50/- |
| 02 | Not wearing safety belt | 100/- |
| 03 | Grinding without goggles | 50/- |
| 04 | Not using 24V supply for internal work | 500/- |
| 05 | Electrical plugs not used for hand machines | 100/- |
| 06 | Not slinging properly | 200/- |
| 07 | Using damaged sling | 200/- |
| 08 | Lifting cylinders without cage | 500/- |
| 09 | Not using proper welding cable with lot of joints and not insulated properly | 200/ |
| 10 | Not removing small scrap from platforms | 200/- |
| 11 | Gas cutting without taking proper precaution or not using sheet below gas cutting | 200/- |
| 12 | Not maintaining elec. winches which are being | 500/- |

| | | |
|---|---|---|
| | operated dangerously | |
| 13 | Improper earthing of electrical T & Ps | 500/- |

3.9.1 The contractor should exclusively deploy one safety Engineer along with a safety supervisor for effective implementation and coordination of safe working condition.

3.9.2 The contractor should submit the safety plan details as enclosed with the tender and scrupulously follow the same during the tenure of contract.

## 3.10. Specific Requirement for ISO 9001 - 2000

**Important note**

Contractor shall make all efforts that all their staff/employees are exposed to periodical training programme conducted by qualified agencies/personnel on ISO 9002 standards.

Contractor shall ensure that the quality is maintained in all the works connected with this contract at all stages to the requirement of BHEL.

Contractors shall ensure that all inspection, measuring and testing equipment that are used, whether owned by the contractors or used on loan, are calibrated by the authorized agencies and the valid calibration certificate will be available with team for verification by BHEL. A list of such instruments possessed by contractor at site with its calibration status is to be submitted to BHEL Engineer for verification and on demand.

Contractor shall arrange for the inspection of the works at various stages as required by BHEL. Immediate corrective action shall be taken by the contractors for the non conformances, if any, observed and pointed out by BHEL and records updated.

# HSE SPECIFIC REQUIREMENT

## OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM

SUB CONTRACTOR TO ENSURE COMPLIANCE OF THE FOLLOWING **HEALTH** RELATED POINTS

01. Sub-contractor to identify nearest hospital for Health check up of his staff and workers and intimate BHEL site office & PSSR HQ.

02. To arrange for occupational health check up / screening of contractor's staff and workers engaged in sub contracting activities. In this, category of workmen such as welders, gas cutters, grinders, radiographers, crane operators are to be given exclusive attention in respect of health screening.

03. Sub-contractor to arrange an ambulance vehicle or emergency vehicle on a continuous basis to meet any emergency situation arising at site work in which his staff and workers are engaged.

04. To provide appropriate facilities for prompt first aid treatment of injuries and illness at work. One first Aider for each sub contractor to be provided. First Aider should undergo training on first aid.

05. To provide filtered drinking water at selected place in a clean container.

SUB CONTRACTOR TO ENSURE COMPLIANCE OF THE FOLLOWING **SAFETY** RELATED POINTS

01. Personnel Protective Equipment **(PPEs**): Required number of following PPEs (Confirming to Relevant IS Standards ) to be made available to workmen at site and ensure that they are used .

- Helmet
- Safety goggles
- Welding face shields
- Safety belts for working at heights
- Safety shoes
- Ear plugs
- Rubber gloves and mats for low tension (L.T) electrical works
- Gum boots & aprons
- Other items as required by BHEL site

02. Sub contractor to liaise with nearest fire station and inform contact telephone number and contact person to meet any emergency.

03. To provide appropriate fire fighting equipment at designated work place and to provide fire fighting training to selected persons in his group of workmen to meet emergencies.

04. To provide adequate number of 24 V power supply points to work in a constrained and enclosed space.

05 . All power tapping points / switch boards /power & control cabling should fulfill required electrical safety aspects as per relevant IS standard.

06 ELCH's (Earth leak circuit breakers) at all electrical distribution points to be provided.

07. Red and white caution tape of proper width ( 1.5 to 2 inch ) to be used for cordoning unsafe area such as open trench, excavated area, etc.

08. To provide sub-contractors company logo or clothing to all staff and workers for identification including identity cards with photographs approved by BHEL.

09. High pressure and structural welders to be identified with colour clothing and to display copy of welders certificate with photographs of welder at the work place. They also should be in possession of valid welding procedure.

10. To display safe handling procedure for all chemicals such as lube oil, grease, sealing compound, kerosene, diesel etc. at stores & respective work place.

11. Contractor should authorize a person at site to stop work if there is a unsafe work noticed, as per his knowledge.

12. Fitness for use of erected scaffolding to be certified by the contractors approved scaffolder and the certificate should be displayed on the scaffolding itself. If the scaffolding is unsafe , the same will not be used. the certificate to be updated daily. The scaffolding to be made as per the relevant IS standard.

13. For making platform on the scaffolding , proper thickness and size of the plank of required quality wood to be used. The safe working load of the platform to be displayed on the scaffolding itself. Proper use of platform to be explained to the user.

14. All plant equipment should have inspection report before put in to use.

15. All T&Ps should be of reputed brand and having quality certificates..

16. All IMTEs should have valid calibration certificate from recommended institution / testing lab and these should be in place.

17. All lifting tackle and plant equipment should have safe working load certificate.

18. The right worker should be deployed for right job and the resume of site in charge, supervisors, and key workers to be submitted before commencement of work.

19. Sub-contractor should submit inspection / testing matrix of all T&Ps and to be approved by BHEL.

20. Sub-contractor to display safety slogan, safety board, caution boards wherever required in consultation with BHEL.

21. Sub-contractor to provide gas detectors of reputed make at desired locations.

22. Sub-contractor to conduct emergency mock drills. one drill per 6 month and submit report to BHEL.

**23. Safe handling and storing of all equipment with adequate space to be ensured.**

24. Sub contractor to deploy safety supervisor till the completion of the project.

25. Sub contractor to comply the safety reporting procedure of BHEL as practiced at present and also additional requirements that may arise out of future improvements in the safety management system. This includes computation of safety indices such as frequency rate, severity rate & incident rate.

26. Sub contractor to identify probable emergency situations such as electric shocks to workmen , caving in of shored earth , fall from height, collapse of scaffolding fire etc., and should have clear action plan to overcome them. Sub contractor to take required guidance from BHEL in this regard.

27. Sub contractor to identify hazardous activities which he may carryout and should train his workmen in those activities with the relevant operation control procedures. Sub contractor to take required guidance from BHEL in this regard.

28. Safe work permit system to be followed while working in confined space / near electric systems.

SUB CONTRACTOR TO ENSURE COMPLIANCE OF THE FOLLOWING **ENVIRONMENT** RELATED POINTS

1. HOUSE KEEPING : Sub contractor to carry out daily house keeping of work areas / stores through a check list prepared in consultation with BHEL.

2. Sub contractor shall adopt pollution prevention / reduce /control approach in all his site activities. this shall include:

    a. Transporting of oil / chemicals from stores to site safely without causing spillage. In case of any spillage, the area shall be cleaned and the remnant spilled oil disposed off to a safe place, identified for such disposal.

    b. To use required containers / cans / safety gadgets /appliances for transporting and for usage of oil / chemicals at site.

3. Sub contractor shall arrange for segregation / collection of scraps and dispose off to the identified place meant for scrap collection.

4. Sub contractor to adopt good erection practices / procedures with the objective of reduction of waste generation / rework

## OTHER HSE REQUIREMENTS TO BE COMPLIED BY SUB CONTRACTOR

1. Sub contractor to clearly understand and accept the HSE policy of PSSR with a commitment to comply the requirements of the policy.

2. Sub contractors to arrange for daily meeting of their supervisors and work force before they disperse for their daily planned activities where in the relevant health, safety and environment aspects of the job and use of PPEs are explained

3. Sub contractor to conduct monthly HSE meeting ( internal ) and submit the report to BHEL.

4. HSE slogans to be displayed in a proper board – hoarding at designated places in consultation with BHEL.

5. Sub contractor to submit a structured programme for training & occupational Health Screening of their work force at site after the Award of LOI.

## SECTION — VI

## SPECIAL CONDITIONS OF CONTRACT

### SCOPE OF WORK:

Construction of 1 No office shed of size 12 M x 32 M, 2 Nos Closed store shed of size 15 x 60 M, 2 Nos Closed Store Shed of size 12 x 32M including fencing around storage yard and Electrification at Neyveli Lignite Corporation Limited., Neyveli, Tamilnadu

### SPECIFICATIONS FOR CIVIL WORKS FOR STORES BUILDING.

### 1.0 GENERAL:

1.1 All works under this section, unless specified otherwise, shall confirm to the latest revisions of the relevant Indian Specifications. In case any particular aspect of work is not covered by Indian standards, other standard specification as may be specified by the Engineer incharge shall be followed.

1.2 The contractor shall carryout all the works in strict accordance with the approved drawings stamped "Released for Construction" and specification issued to him. **No deviation from the drawings will be allowed unless otherwise directed by the Engineer in charge in writing.**

1.3 All materials to be incorporated in the work for the construction, shall confirm to the relevant IS specifications unless stated otherwise and shall be of the quality approved by the Engineer.

1.4 The drawings are tentative and strictly for tender purpose only. Contractor should ensure/ascertain the stability, safety of the said work. Any modification from the said drawings, if necessary as suggested by the contractor will have to be approved by BHEL in writing.

## 2.0 EARTHWORK EXCAVATION

2.1 Earth work excavation in all types of soil for foundations, trenches including the shoring, strutting, dewatering, filling around foundations and to grade, compaction of fills etc for the works covered under the scope of this contract.

2.2 The area to be excavated shall be cleared out of bush, rubbish and leveled up. During excavation, if blasting is required, controlled blasting can be permitted with the prior permission in writing.

2.3 Excavated material shall not be deposited within 1.5 M from the top edge of the excavation or within distance equal to the depth of excavation, whichever is higher.

2.4 If Contractor excavates beyond the specified depth, the over excavated portion shall be filled back only with 1:4:8 cement concrete and well compacted without any extra cost.

2.5 The excavated soil will be disposed off by using it for back filling or by either spreading at designated disposal area. All surplus materials from excavation shall be carried away from excavation side and dumped at dumping site selected by the Engineer.

2.6 The earth filling shall be carried out by cutting & removing by Mechanical means, transporting within Plant Building (or) from outside borrowed earth, Filling in layer, watering, compacting by Roller/Compacters to carry out construction works over the filling as per the direction of Engineer Incharge.

2.7 All work shall in general be executed as specified in IS 6313 part II for **ANTI TERMITE TREATMENT** and as per approved specification of the agency having special know-how for the job. All necessary work to ensure uniform distribution and proper penetration of treating solution shall be done according to the instruction of the Engineer. Soil treatment shall not be done when the soil is wet with rain or subsoil water. Once formed, the treated soil barrier shall not be disturbed.

2.8 Treatment of Column Pits, Wall Trenches, Basement Excavations, foundation and basements etc., may be either be fully enveloped by chemical barrier or the treatment may start 500 mm below ground level.

The bottom surface and sides of excavation (up to a height of about 300mm) for column pits.

2.9 Wall trenches and basement shall be treated with chemicals at the rate of 5 litres / SQ.M of surface area. Backfills around columns walls etc., shall be treated at the rate of 15 litres / SQ.M. of the vertical surface. Chemical treatment shall be done in stages following the compaction of earth in layers. The treatment shall be carried out after the ramming operation is done by rodding the earth at 150mm centers close to the wall surface and spraying the chemicals in the specified dose.

2.10 Treatment of Top surface of plinth filling shall be done by holes 50mm to 75mm deep at 150mm centers both ways shall be made with crowbars on the surface of compacted plinth fill. Chemical emulsion at the rate of 5 liters / SQ.M. of surface shall be applied prior to laying soiling or sub-grade. Special care shall be taken to maintain continuity of the chemical barrier at the junction of vertical and horizontal surface.

2.11 Special care shall be taken for Treatment of Soil surrounding pipes and conduits at the points where pipes and conduits enter the building and the soil shall be treated for a distance of 150mm and a depth of 75mm at the point where they enter the building. Special attention shall be taken in Treatment of expansion joints and shall be treated in a manner approved by the Engineer.

## 3.0 CONCRETE:

3.1 All the concrete works under the scope of Contract will be done in accordance with the relevant IS standards. The plain cement concrete for the foundations will be of nominal mix like 1:4:8. The reinforced cement concrete will be of 1:2:4 mix unless otherwise specified.

3.2 The reinforcement shall conform to the latest revisions of IS specification. The bars will be used of deformed bars conforming to IS 1786. The cutting, bending and placing of the reinforcement will be as per the drawing and direction of Engineer-in-Charge.

3.3 The form work should be capable of carrying the dead load of the concrete, the reinforcements and the forces due to vibration.

3.4 The form work shall be designed by the Contractor and approved by the Engineer-in-Charge.

3.5 Curing shall be done for all the concrete works continuously. The form work will be removed after sufficient curing is done.

## 4.0 MASONARY WORK:

### 4.1 Random Rubble masonary:

The RR masonary in cement mortar 1:5 shall be done for the foundation as mentioned in the drawing.

### 4.2 Brick masonary:

Bricks used are of standard size as required or as directed by Engineer In charge. The brick work in cement mortar 1:6 shall be done for all the walls all around as shown in the drawing. The pillars will be made of brick work. All the partition works will also be made with brick work.

4.3 The plastering will be done over the brick masonary in cement mortar 1:6 of 12mm thick both for interior as well as external walls.

## 5.0 STRUCTURAL WORKS:

5.1 This specification covers the Roofing, structures for office cum storage shed.

5.2 The roofing structures shall cover tubular trusses, purlins, bottom tie runners, anchor plates, base plates and fixing bolts for trusses, asbestos corrugated cement sheets with "J" bolts etc. Any other item not specifically mentioned but required for completion of the structure shall be deemed to have been included in this specification. The Tubular Trusses, purlins, Bottom tie runners will be fabricated from raw materials by the tenderer as per the drawing and as directed by Engineer In charge to complete the work. The required base plate. Anchor bolt, GI 'J' bolt etc., are to be arranged by the contractor at his cost.

5.3 The trusses shall be of tubular steel welded construction fabricated in places of convenient length for transportation by truck and speedy erection at site. The base plates will be welded to the trusses for fixing the same on pillars. Necessary cleats or fixing plates shall be provided on the trusses, for holding the purlins and the bottom tie runners, all as shown in the fabrication drawing.

5.4 The purlins and bottom tie runners shall be of steel tubes of sizes shown in the drawing. Corrugated asbestos cement sheets shall be used for the roofing. The sheets shall be fixed to purlins with GI "J" bolts, cap washers, bitumen washers. Flat iron wind ties 32 x 5 mm flat shall be provided over the AC sheets for additional protection against wind storms, for all rows with in the Quoted Rates.

## 6.0 FALSE CEILING:

6.1 The work under this section shall include the supply and installation of suspended ceiling using insulation / acoustic boards / plain asbestos sheet, Aluminium panels, plaster of Paris boards, "prespex" etc., together with the suspension system as shown on drawing or specified in schedule with all materials, labour and equipments. The work shall also include providing of openings in the ceiling for lighting, Air conditioning diffuser etc., as shown on drawing or instructed by Engineer.

6.2 Suspension system shall consist of the grid supporting the ceiling panels, intermediate runner supports for the grid if any and hangers, wall angels, etc., required to suspend the grid or the runners for structural walls, slabs and beams or trusses proved factory made hanging system as approved by the Engineer may be used.

6.3 All members of the suspension system shall be of sufficient strength and rigidity to carry the ceiling boards or sheets in a true and level plane without exceeding a deflection of 1/360 th of their span. All joints in ceiling panels shall run straight and cross joint shall be at perfect right angles. Angle moulds where shown on drawings shall be securely fixed to walls / all drillings of structural concrete and installation of suitable anchoring device for installation including welding of the suspension system shall be included in the rate. All MS sections used for supports etc., shall be given one coat of synthetic enamel paint over a coat of red lead primer. All wood supports shall be painted with two coats of 'solignum' or other approved wood preservative before erection.

6.4 Aluminium grid ceiling shall be "Beadlock" as manufactured by W.A.Beardshell and Co or Ajit India Ltd., or approved equal, steel grid ceiling system shall be of "Jolly Snap Grid" as manufactured by Anil Hardboards Ltd., or approved equal. The contractor shall ensure that the frame to support the ceiling is designed for its structural strength to

withstand the weight of the ceiling boards to be fixed, live load of 75 Kg/Sq.Cm and other loads such as that of air-conditioning ducts, grills, electrical wiring and lighting fixtures, thermal insulation etc., are as shown in the drawing. The contractor shall also submit a detailed drawings to show the grid work, sizes of grip members method of suspension position of openings, for air-conditioning and lighting, access doors etc., Angle cleats or other suitable fixing device shall be fixed to the structural beam or slab above for fixing of hangers Main runners shall be hung by M.S.flats, angle rods or 12g or heavier galvanized tie wire hangers at maximum 1.2M centers. Extra hangers shall be provided at light fixtures that are supported from the ceiling system. The spacing of main and cross runners shall be as shown on drawings. Turn buckles shall be provided in M.S. rods for adjustment in levels.

6.5 The cross tees shall intersect main runners in pattern shown on drawing and positively locked together with intersection clips. All perimeter areas shall have angle moldings fixed to vertical wall surfaces and end trees shall rest on the molding, unless otherwise shown on drawings.

6.6 The Contractor shall provide necessary opening in the false ceiling for air conditioning, lighting and other fixtures. Additional framing if required, for the above openings shall be provided at no extra cost to the owner. Removable or hinged type inspection or access trip doors shall be provided at locations specified by the owner.

6.7 Ceiling panels shall be of best quality material in thickness and properties called for in the 'Schedule of Items'. The contractor shall submit test certificates to the Engineer for approval before bulk supply. The Ceiling panels may be of the following types manufactured by reputed manufacturers.

a) Plaster of Paris boards
b) Expanded polystyrene insulation boards
c) Fiber insulation boards
d) Wood particle boards
e) Perforated Aluminium panels
f) Mineral wood ceiling tiles
g) Glass fiber reinforced polystyrene sheets
h) Flat asbestos sheet

6.8 Acrylic plastic sheets, translucent or figured glass sheets, moulded plastic louvers, etc., if used shall be from approved manufacturers and in thickness specified in schedule.

6.9 Installations of Ceiling panels shall be strictly as per manufacture's instruction. For exposed grid ceiling system, the hold down clips shall be used at the rate of minimum one per 1.2 meter of perimeter. These shall however be omitted in access panels which shall be located as per the instruction of Engineer.

6.10 For concealed grid ceiling system, tiles shall be fixed to the supporting grid in manner shown on drawing or as specified by the manufacturer, where V joints in tiles are called for in drawings, these shall be in true lines.

6.11 Where flush surface is required, the joint shall be filled with approved filler material and finished to give a neat uniform surface. Where shown on drawings and schedule of items, 6 mm thick cement:sand (1:3) plaster shall be applied on the under surface of ceiling boards and finished in a true and even surface without undulations suitable for subsequent painting. Special care shall be taken to neatly finish the ceiling at junctions with walls, light fixtures diffusers etc.

## 7.0 DOORS AND WINDOWS

7.1 The doors shutters shall be of flushdoor as specified in the item specifications. The door frame will be made of MS Angle as shown in the drawing. All the joints are made to true line and shape. All the fittings are to be provided as directed by Engineer.

7.2 The steel windows and ventilators are made of standard steel sections as per IS 1038. The glazing will be done as per standards and thickness will be 5 mm wire gauged glass.

## 8.0 PELMET:

This shall be checked for rigidly for fixing and adequate clearance of fixture. Pelmet shall be measured for length of different types enumerated in the schedule.

## 9.0 PAINTING & FINISHING

9.1 All steel surfaces including ventilators, windows, grills, rolling shutter etc shall also be primed with approved steel primer (one coat) and two coats of approved enamel paint so as to achieve as even.

9.2 All the structural webers shall be provided with two coats of anti rust red oxide primer paint after proper cleaning of the surface.

9.3 Three coats of white washing shall be provided uniformly on all wall surfaces of the shed as per IS specifications.

## 10.0 WATER SUPPLY & SANITATION

10.1 Necessary sanitary and plumbing works shall be provided for Indian type water closet, urinals and with sufficient water taps and all connections with supply lines/septic tank shall be provided by the contractor in BHEL office shed as per drawing. The material used and the location etc shall be as per the directions of BHEL Engineer even though indicated in the drawing given with tender.

10.2 Wash basins, WCs and Urinal pans with water and drainage connections as per drawing enclosed shall be provided, suitable drainage facility shall be provided.

10.3 One number septic tank and casspool shall be provided by the contractor at the locations specified by BHEL complete in all respects as per the enclosed drawings.

## 11.0 ELECTRICAL INSTALLATION

11.1 The electrical installation shall generally be carried in conformity with the requirements of the Indian Electricity Act 1910 as amended up to date and the Indian Electricity Rules 1956 framed there under and also the relevant regulations of the Electric Supply Authority concerned as well as IS 732- 1963 (Revised).

11.2 Good workmanship is an essential requirement for compliance with the Rules in the Code.

11.3 The work shall be carried out under the direct supervision of the person holding a valid certificate of competency issued by the State Government concerned for the type of work involved.

11.4 All outdoor/external lamps shall have weather proof fittings of design approved by BHEL Engineer so as to effectively prevent the admission of moisture.

11.5 The distribution boards shall be located as near as possible to the centre of the load they are intended to control.

11.6 All main switches (unless otherwise specified elsewhere) shall be of metal clad enclosed pattern which shall be fixed at close proximity to the point of entry of supply.

11.7 Main and branch distribution shall be in accordance with IS 732-1963 Code of practice for electrical wiring installation.

11.8 PVC conduit wiring system should be adopted through out and all conduit pipe shall be conformity to the latest IS.

11.9 Approved and good quality wire with adequate current carrying capacity, voltage rating with proper insulation as per IS should be used for the entire electrical wiring/installation.

11.10 Mounting height of various equipments from FFL shall be as follows unless noted:

| | | |
|---|---|---|
| Lighting panel | - | 1200 mm |
| Lighting control switches | - | 1200 mm |
| Receptacles with switch | - | 500 mm |

11.11 However, this may vary according to site conditions and contractor to take prior approval of BHEL Engineers before fixing.

11.12 Individual lighting circuits inside the building shall be wired with 250/440 grade single core Aluminium conductor of 4 mm size and receptacle circuit shall be wired with 6 mm size Aluminium conductor standard PVC wires.

11.13 Lighting fixtures receptacles, switches, conduits junction boxes and ceiling fan shall be properly earthed by using 14 SWG GI wire.

11.14 Incoming cable to lighting panel shall be PVC Aluminium conductor armored cables.

11.15 Ceiling fan regulator, lighting control switches etc shall be mounted to suit the lay out and shall be flush mounted on the walls with good quality plastic/fiber, glass cover.

11.16 A separate neutral wire shall be provided for each phase wires.

11.17 Tenderer shall quote for unit price for all items listed in bill of materials, for both supply and installation and also quote for point wiring basis.

11.18 All lighting fitting shall be supplied with the specified lamps.

11.19 All the suspension conduit boxes shall be of GI.

11.20 Earth wire shall be run inside the PVC conduits.

11.21 The wiring shall be carried out in PVC conduits of maximum size of 19 mm dia and shall be of surface type.

11.22 The required number of lighting fitting such as fluorescent lamps and incandescent lamps are given in schedule.

11.23 The rate for supply of incandescent and fluorescent lamp shall include for suitable reflectors, suspension device starters, chokes, condensers as required.

11.24 The AC supply will be 430 V, 3 phase, 50 cycles. All the power plugs shall be segregated from the light points and wired in a separate circuit.

## 12.0 EARTHING:

12.1 All earthing systems shall be in accordance with IS 3043-1966; Code of practice of Earthing.

12.2 The installation and earthing shall generally be carried out in accordance with the Indian Electricity Rules, 1956 as amended from time to time and the relevant regulations of the Electricity Supply Authority concerned.

12.3 All plugs and sockets shall be of three pin type. One of the pins being connected to earth.

12.4 Bodies of all electrical appliance shall be earthed by the use of three pin plugs. The covers of the regulators, if of metallic construction, shall be earthed by means of separate earth wire. A separate earth wire shall be used for earthing these appliances.

12.5 All earth wires and earth-continuity conductors shall be of copper/galvanized iron. They shall be either standard or solid bars of flat rectangular strips and may be bare, provided, due care is taken to avoid corrosion and mechanical damage to it. Inter connections of earth continuity conductors and main branch earth wires shall be made in such a way that reliable and good electrical connections are permanently ensured.

12.6 The neutral conductors shall not be used as earth wire.

12.7 Welded, bolted and clamped joints only are permissible. For stranded conductor, sleeve connectors are permissible. Bolted connections and their screws shall be protected against any possible corrosion.

12.8 The path of the earth wire shall, as far as possible, be out of reach of any person and shall be visible for inspection.

12.9 The galvanized iron pipe electrodes shall not be smaller than 38 mm ID and shall not be less than 2.5M in length be embedded below permanent moisture level and shall be of one piece only without any joints.

## 13.0 PRICE ESCALATION

13.1 The quoted/accepted rate has to be kept firm for the entire contractual period including total extended period if any and no claim for revision of rates is allowed under any circumstances.

13.2 However the contractor shall maintain sufficient work force and other resources required for completion of the job expeditiously for the entire contractual period including total extended period.

## 14.0 TIME SCHEDULE

14.1 The contractor should complete Construction all the sheds including electrification and connected works in all respects with in **Six ( 6** ) months from the actual commencement of work at site. However 1 No office shed and 2 Nos closed store shed of size 15 x 60 M to be handed over at the end of **four ( 4 )** months.

14.2 The contractor shall start the work within one week from the date of issue of Fax letter of intent.

14.3 The rates quoted shall remain firm throughout the contract period till the entire construction work is completed in all respects to the entire satisfaction of BHEL.

14.4 For the above purposes, the work under the specification will be deemed to be completed in all respects, only after successful handing over of the works to BHEL and certified so by BHEL Engineer.

14.5 During the tenure of contract, if BHEL is not satisfied with the progress of work, BHEL have the right to withdraw any portion of work / balance work and get the same done either directly employing their own personnel or through other agency at the risk & cost of the Contractor. The contractor shall not be entitled for any compensation whatsoever in this regard.

## 15.0 TERMS OF PAYMENT

15.1 90% of the accepted item rate in the rate schedule shall be paid as certified by BHEL Engineer.

15.2 5% of the accepted item rate in the Rate Schedule shall be paid on the entire execution of work and completion of the same as envisaged in the tender documents duly certified by BHEL Engineer and on submission and acceptance of final bill.

15.3 Balance 5% of the accepted item rate in the rate schedule will be payable after expiry of **6 (SIX)** months after taking over of the entire scope of work by BHEL.

## 16.0 IMPORTANT CONDITIONS FOR PAYMENT

It may be noted that the first running bill will be released only on production of the following.

i. PF Regn. No.

ii. Labour Licence No.

iii. Workmen Insurance Policy No.

iv. Un Qualified Acceptance to Detailed L.O.I.

v. Initial 50% Security Deposit.

vi. Rs. 100/- Stamp Paper for Preparation of contract agreement

## 17.0 SPECIAL CONDITIONS OF CONTRACT-GENERAL

1. The quantities indicated in the rate schedule are approximate and may vary depending on site conditions and any changes in design at the time of construction. The payment in unit rate will be made only based on actual measurement jointly taken at site and certified by BHEL Engineer. No extra claim due to variation in quantities will be entertained. Contractor to make a note of this and to quote accordingly.

2. The quantities of doors, windows, ventilators etc., indicated in the rate schedule may vary slightly due to site conditions and minor design changes at the time of constructions. However payment will be made for actual quantities erected at site and no additional claim will be entertained in this regard. Also some of the windows have to be fabricated/modified to provide AC and the rates quoted should be inclusive of the same. After fixing the AC, the gap all round to be closed to form a perfect seal by providing a thermo coal packing and furnished by fixing laminated sheets for aesthetic view.

3. Price quoted above shall include supply of all materials, their transport, storage and preservations.

4. BHEL reserves the right to reject materials of substandard/not conforming to IS Specifications purchased by the contractor.

5. For fluorescent fitting at appropriate safe height when will be decided at site during construction. Contractor to make a note of the same and quote accordingly.

6. Contractor to note that necessary scaffolding for doing any type of job including painting, electrical works etc., even if not specifically mentioned in the rate schedule is in the scope of the contractor.

7. All the electrical fittings, including bulbs, tube lights, flood lights etc., mentioned above shall carry IS markings on them and shall be subject to the approval of BHEL site Engineer prior to their installations and shall be as per make of materials schedule enclosed in Appendix. The contract shall be executed on "FIRM PRICE" basis with no escalations payable on any amount whatsoever rates quoted shall be for all leads, lifts, and heights.

8. Rates quoted shall be inclusive of supply of materials, like cement, sand, bricks, stone, aggregate, lime, jelly, iron and steel materials, all kinds of paints, materials for doors and windows, ventilators, all fittings electrical fittings and their accessories, wooden materials, reinforcement steel, screws, bolts, nuts, washers, 'J' bolts etc., etc., Necessary transport, loading unloading etc all shall be borne by the contractor. All tools and plants required consumables shall be provided by the contractor at his cost.

9. All electrical fittings like fans, Exhaust fans, Tube lights etc., shall be marked / identified with running serial numbers before handing over of the sheds, to enable BHEL to keep inventory of the fittings and for effective control.

10. The contractor is requested to take care of the following statutory clearance which are under the scope of contractor.

The contractor is also requested to refer clause 2.8 of G.C.C. booklet.

a. Labour License
b. Provident Fund
c. Insurance for Bidder's scope of work
d. Workmen compensation
e. Local rules governing the works like Electrical Inspectorate etc. Factory Inspectorate.
f. Professional Tax
g. Safety Rules & Regulations
h. Competent Authority approval for Installation works
i. Employees State Insurance Scheme
j. Sales Tax on work contract.

## 18.0 PROVIDENT FUND & MINIMUM WAGES

Your are required to extent the benefit of Provident Fund to the labour employed by you in connection with this contract as per the Employees Provident Fund and Miscellaneous Provisions Act 1952. For due implementation of the same, you are hereby required to get yourself registered with the Provident Fund authorities for the purpose of reconciliation of PF dues and furnish to us the code number allotted to you by the Provident Fund authorities within one month from the date of issue of this letter of intent. Incase you are exempted from such remittance an attested copy of authority for such exemption is to be furnished. Please note that in the event of your failure to comply with the provisions of said Act, if recoveries therefore are enforced from payments due to us by the customer or paid to statutory authorities by us, such amount will be recovered from payments due to you.

The contractor shall ensure the payments of minimum labour wages to the workmen under him as per the rules applicable from time to time in the state.

The final bill amount would be released only on production of clearance certificate from PF/ESI and labour authorities as applicable.

## 19.0 SALES TAX

This being a civil work sales tax liability would arise and hence contractor is required to register under local sales tax laws. Sales tax at source would be enforced from the Running Bills, if applicable in the state, at the rates prescribed unless exemption certificate is produced.

The contractor has to register under local Sales Tax-Law and get assessed. The contractor has to give a certificate each year that the returns and submitted regularly and the turnover on this contract is included in his sales tax return. The sales tax registration number and certificate is to be furnished at site soon after the award of contract. However in case delay is anticipated in obtaining S.T. Regn.No. a copy of application for registration filed with ST authorities shall be submitted along with first running bills and the ST Regn.No. will be submitted within a reasonable time**.**

The final bill amount would be paid only after submission of proof of inclusion of the turnover of this contract in the ST Returns or ST Clearance certificate. The ST deduction at source will be made from running bills, unless necessary exemption is produced.

## 20.0 SERVICE TAX

Service Tax as applicable for this tender specification will be borne by BHEL. The contractor may claim the service tax in their RA bill and the same will be paid by BHEL on production of copy of registration certificate. Proof of remittance of service tax by the contractor to the service tax authorities, relating to previous RA bill, has to be produced from the second running bill onwards.

## TAXES , DUTIES, LEVIES

Refer to clause 2.8.4 of general conditions of contract in this regard.

## NEW LEVIES / TAXES

In case the government imposes any new levy / Tax after award of the work, BHEL shall reimburse the same at actuals on submission of documentary proof of payment subject to the satisfaction of BHEL that such new levy / Tax is applicable to this contract. No reimbursement on account of increase in the rate of existing levies shall be made.

## SECTION – VII APPENDIX – I
## MAKE OF MATERIALS TO BE USED

| Sl.No | Name of Material | Make |
|---|---|---|
| 01. | UG Cable | Semens: ICC: Omega, Paragon: Gloster: Premier make |
| 02 | Wiring Cables<br>a. 3/1.04 (2.5 sq.mm)<br>b. 7/2.04 (6.0 sq.mm) | Crompton Heavy: ICC:Paragon: Finolex: Omega, Alind make |
| 03 | Switches – 5 amps<br>Single Pole (Flush type) | Anchor |
| 04 | Distribution Board | Teakwood |
| 05 | Ceiling Rose | Anchor |
| 06 | Bulbs | Philips: GEC:Crompton |
| 07 | Shades | Ellora, White Opar |
| 08 | AC – Single Phase/Three phase 10 Amps 50 Cycles Energy Meter | REMCO: SIMCO |
| 09 | 5 Amps 3 Pin CS Plug | Anchor |
| 10 | 15 Amps 3 Pin CS Plug | Anchor |
| 11 | a. IC Switch above 60 amps<br>b. IC Switch below 60 amps | GEM: GEC: Crompton |
| 12 | Tube light (Fluorescent with fittings complete) | Philips: Crompton : GEC |
| 13 | Pendent Holders or BH | Ellora: Khosala: Standard: KE |
| 14 | Bulk Head Fittings | K-LITE |
| 15 | Fuse Units | Anchor: GEM: GEC |
| 16 | Screws | Steel scres shuld be used for all works. The particular make of the materials selected should be one and the same for all the blocks. |
| 17 | Ceiling Fan | Usha, Orient, Crompton |

NOTE: All Electricals fittings like fans, Exhaust fans, tube lights etc shall be marked/identified with running Serial Numbers before handing over of the sheds, to enable BHEL to KEEP inventory of the fittings and for effective control.

## SECTION VII

## APPENDIX – II

## DECLARATION SHEET

I, hereby certify that, all the information and data furnished by me with regard to this Tender Specification No.BHEL:PSSR:SCT:1173 are true and complete to the best of my knowledge. I have gone through the specifications, conditions, stipulations in detail and agree to comply with the requirements and intent specifications.

I further certify that I am duly authorized representative of the under mentioned tenderer and a valid power of Attorney to this effect is also enclosed.

TENDERER'S NAME & ADDRESS

AUTHORISED REPRESENTATIVE'S
SIGNATURE WITH NAME & ADDRESS

**SECTION VII**

**APPENDIX – III**

**TENDER SPECIFICATION NO BHEL:PSSR:SCT:1173**

**CERTIFICATE OF DECLARATION FOR CONFIRMING KNOWLEDGE ON SITE CONDITIONS**

We,

hereby declare and confirm that we have visited the project site under subject, namely and acquired full knowledge and information about the site conditions. We further confirm that the above information is true and correct and we will not raise any claim of any nature due to lack of knowledge of site conditions.

TENDERER'S NAME AND ADDRESS

SIGNATURE OF AUTHORISED
REPRESENTATIVE WITH NAME & ADDRESS:

Place:

Date :

OFFICE SEAL

# BHARAT HEAVY ELECTRICALS LIMITED

**(A Government of India Undertaking)**
**Power Sector: Southern Region**
**690, Anna Salai, Nandanam, Chennai – 600 035.**

**SECTION VII**

**APPENDIX - IV**

**CHECK LIST**

**TENDER SPECTFICATION NO, BHEL: PSSR : SCT : 1173**

Tenderers are required to fill in the following details:

| | | | | |
|---|---|---|---|---|
| 1. | a) | Name of the Tenderer with address | : | YES/NO |
| | b) | Telegraphic/Telex address | : | YES/NO |
| | c) | Phone (Office/Residence) | : | YES/NO |
| | d) | Management Structure of firm (Pvt. Ltd/Public Ltd./Partnership/Sole Proprietorship) Documentary proof For the same enclosed) | : | YES/NO |
| 2. | | Whether EMD submitted as per Tender specifications terms and Conditions | : | YES/NO |
| 3. | | Validity of offer (offer shall be kept open for acceptance for minimum six months) | : | YES/NO |
| 4. | | Whether tenderer visited the erection site and acquainted with the site conditions before quoting | : | YES/NO |

**SIGNATURE OF THE TENDERER**

| | | | | |
|---|---|---|---|---|
| 5. | Whether the following details are furnished | | : | YES/NO |
| | a) | Previous Experience | : | YES/NO |
| | b) | Present assignments | : | YES/NO |
| | c) | organization chart of the company | : | YES/NO |
| | d) | Company financial status | : | YES/NO |
| | e) | Incase of company, proof of Registration of the company | : | YES/NO |
| | f) | Memorandum & Articles of Association of company/copy of Partnership deed | : | YES/NO |
| | g) | Profit & Loss account for the Last 3 years | : | YES/NO |
| | h) | Audited Balance sheet for the Last 3 years | : | YES/NO |
| | i) | Income Tax clearance certificate (latest) | : | YES/NO |
| | j) | Solvency Certificate from a Nationalised Bank | : | YES/NO |
| | k) | Power of Attorney of the person Signing the tender duly attested By a Notary Public | : | YES/NO |
| | l) | Manpower organization chart With deployment plan at site For posting of Engineers/super Visitors and workers/labourers For satisfactory completion of Work under this specification | : | YES/NO |

SIGNATURE OF THE TENDERER

| | | | |
|---|---|---|---|
| 6. | Whether the Tenderer is conversant with local labour laws & conditions | : | YES/NO |
| 7. | Whether the tenderer is aware of all safety rules and codes | : | YES/NO |
| 8. | Whether the Declaration sheet (as per appendix enclosed | : | YES/NO |
| 9. | Time required for mobilization of of site organization and start of work | : | YES/NO |
| 10. | Whether list of tools and Plants available with the contractor and proposed to be deployed for this work enclosed | : | YES/NO |
| 11. | Whether all the Pages are read understood and signed. | : | YES/NO |
| 12. | Deviations, if any Pointed out | : | |
| 13. | Whether PF exemption No. is allotted by RPFC of your area if so, indicate number | : | YES/NO |

SIGNATURE OF THE TENDERER

# TENDER SPECIFICATION

**BHEL:PSSR:SCT: 1173**

**FOR**

Construction of 1 No office shed of size 12 M x 32M, 2 Nos Closed store shed of size 15 x 60 M, 2 Nos Closed Store Shed of size 12 x 32 M including fencing around storage yard and Electrification

**at**

Neyveli Thermal Power Station Expansion

**Unit 2 x 250 MW**

**Neyveli, Cuddalore Dist. Tamilnadu.**

## PART – II PRICE BID

**BOOK NO :**

**BHARAT HEAVY ELECTRICALS LIMITED**
(A Government of India Undertaking)
Power Sector – Southern Region
690, Anna Salai, Nandanam, Chennai – 600 035.

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

TENDER SPECIFICATION NO:BHEL:PSSR:SCT:1173

NAME OF WORK

Construction of 1 No office shed of size 12 M x 32 M, 2 Nos Closed store shed of size 15 x 60 M, 2 Nos Closed Store Shed of size 12 x 32M including fencing around storage yard and Electrification at Neyveli Lignite Corporation Limited., Neyveli, Cuddalore Dist., Tamilnadu

(PRICE BID)

PART II

Issued to
M/s.

For and on behalf of
BHARAT HEAVY ELECTRICALS LIMITED

Senior Deputy General Manager/Contracts

(This tender document is not transferable)

Place: Chennai-600 035.
Date:

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| | ***I PART A. CIVIL WORK*** | | | | |
| 1 | Earthwork excavation in all kinds of soils (except hard rock, soft disintegrated rock) and depositing within an initial lead of 50 m for foundations, sewers etc., Rate to include baling, strutting, shoring, sectioning the sub grade to proper level , grade, watering & consolidating to receive the concrete bed and refilling the foundation, basement & trenches with excavated earth and consolidating, all as per standard specifications. | 2600 | CUM | | |
| 2 | Earthwork excavation in soft disintegrated rock soft laterite, rock, kankar and soft rock not requiring blasting and depositing within an initial lead of 50 m and initial lift of 2 m for foundation, sewer lines etc. rate include baling, strutting, shoring etc., cost of sectioning the subgrade of proper level and grade, watering and consolidating to receive concrete bed and refilling the foundation, basement and trenches with excavated material all as per standard specifications. Payment will be based on pit measurements. | 100 | CUM | | |
| 3 | Supply at site of work and filling with good river sand and compacting well with watering, ramming, for foundation and basement. | 400 | CUM | | |
| 4 | Clearing jungle including uprooting of rank vegetation, grass, brush ,wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared. | 1000 | SQM | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 5 | Providing 1.8 m high fencing with 2.40 m MS angle 50x50x6 mm posts placed every 3 m center to center embedded in cement concrete blocks 35x35x45 cm of 1:4:8 (1 cement: 4 fine sand: 8 graded stone aggregate 40 mm nominal size), every 15$^{th}$ post last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and two diagonals inter woven with horizontal wires of barbed wire 9.38 Kg per 100 m (min) between the two posts and fixed with GI staples, turn buckles etc., complete. **Rate to include cost of MS angle posts, struts, barbed wire, earth work, concrete, labour charges etc., complete** as per standard specifications. | 2000 | RM | | |
| 6 | Preparation of sub grade by excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with power road roller of 8 to 12 tonnes capacity including making good the undulations etc., and disposal of surplus earth lead upto 50 mtrs. | 10000 | SQM | | |
| 7 | Disposal of excavated earth from initial lead of 50M and lead up to 2 KM lead by transporting, dumping and leveling area as directed by Engineer in charge. | 1000 | CUM | | |
| 8 | Supplying and laying of soling stones of size 225 mm | 2250 | CUM | | |
| 9 | Supply and laying of moorum at site | 2600 | CUM | | |
| 10 | Supply and Laying water bound macadam with specified stone aggregate stone screening and blinding material (moorum) including screening, sorting, spreading to template and consolidating with power road roller of 8 to 12 tonnes capacity etc., complete. Rate shall include the cost of all raw materials ,labour and hire charges for road roller. | | | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| a) | Subbase with stone aggregate 90 mm to 45 mm including stone screening (13.2 mm size) | 1000 | CUM | | |
| b) | Subbase with stone aggregate 63 mm to 45 mm including stone screening (13.2 mm size) | 750 | CUM | | |
| 11 | Collection of earth from outside the project area and supplying to BHEL site, including excavation, loading, transporting, unloading, stacking, filling etc., compacting with watering, ramming etc., complete. Payment will be made based on stack measurement. | 1600 | CUM | | |
| 12 | Providing and laying PCC of mix 1:4:8 using 40mm size hard broken granite stone jelly including ramming, leveling, curing etc., for flooring and foundations including providing necessary slopes etc., complete as per standard specifications at heights. | 600 | CUM. | | |
| 13 | Providing random rubble masonary in C.M. 1:5 using hard granite stone of approved quality including simultaneous flush pointing as per specifications for foundation and basement. | 600 | CUM. | | |
| 14 | Providing damp proof course (DPC) in cement concrete 1: 2: 4, 40 mm thick with 12 mm and down graded blue granite chips. The concrete shall be well rammed and smoothened out with trowel and when dry, two coats of hot bitumen, grade 80 / 25 shall be applied @1.5 kg / sqm over it & allowed to dry, after which clean sand & 0.01 cum / sqm shall be sprinkled over the concrete. Rate to include cost of all materials, labour etc. complete. | 350 | SQM | | |
| 15 | Providing brick work in C.M 1 : 6 in foundation and superstructure using clay bricks as per standard specifications. Rate to include cost of scaffolding, labour, curing etc., complete. | 350 | CUM | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 16 | Providing brick partition wall 115 mm thick in C.M. 1 : 4 using clay bricks of approved quality including plastering all faces with C.M.1:5, 12mm thick, all as per standard specifications. | 100 | SQM | | |
| 17 | Providing and laying R C C of mix 1: 2: 4, using 20mm down size hard broken granite stone jelly for all types of RCC works at all heights including centering, shuttering, scaffolding, finishing, curing etc. complete, but excluding cost of reinforcement fabrication all as per standard specifications. Rate to include for providing necessary slope in the concrete as directed by Engineer in charge. | 25 | CUM | | |
| 18 | Cutting, bending, binding and placing in position with necessary binding wire of CTD bars for reinforcement including cost of MS binding wire of 18 / 20 gauge for all types of R C C works at all heights. Rate to include cost of steel, labour, fixing charges etc., complete. | 5 | MT | | |
| 19 | Providing plastering with CM 1: 6, for the following thicknesses all as per standard specifications, including rendering smooth, rounding of corners etc., complete | | | | |
| a) | 12mm thick | 4500 | SQM | | |
| b) | 18mm thick | 4500 | SQM | | |
| 20 | Providing plastering with CM 1: 3 12mm thick using water proofing compound 2% by weight of cement (Accoproof or impermo or equivalent as specified in IS 2645 ) for water facing surfaces as per standard specifications. | 100 | SQM | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 21 | Finishing the top of floor with 20 mm thick cement concrete (without sand) in the proportion of one part of cement & three parts of 3 to 6 mm grade hard broken granite stone chips, finishing the surface smooth, curing, etc., complete all as per standard specifications at all levels (ELLIS pattern flooring first sort). | 400 | SQM | | |
| 22 | Providing and fixing in position of RCC precast slabs of mix 1:2:4 using 6 to 12mm size hard broken blue granite stone jelly including moulding, shuttering, finishing, curing, carrying, fixing in position etc. complete, but excluding cost of reinforcement fabrication charges, all as per standard specifications | | | | |
| a) | 50 mm thick slab | 200 | SQM | | |
| b) | 75 mm thick slab | 500 | SQM | | |
| 23 | Supplying, fabricating and fixing in position of steel glazed windows and ventilators of standard rolled steel sections, 100 x 15 x 3 mm lugs embedded in cement concrete 1: 3: 6 blocks of size 150 x 100 x 100 mm including providing 10 mm square horizontal bars at 100 mm c / c welded to the frame glazing with 5mm thick wire gauge figured glass panes fixed with glazing pins and special sash putty of approved make, and two coats of enamel paint of approved make, and colour. Rate to include cost of raw material, metal beading, hinges or pivots, appliances, labour, fixing, painting etc., complete, all as per standard specifications. | 100 | SQM | | |
| 24 | Providing and fixing approved quality hydraulic door closure conforming to IS 3564 as directed by Engineer in charge. | 2 | Nos | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 25 | Manufacturing, supplying and fixing of flush door comprising of 25 mm thick with flush door frames of size 95 mm x 70 mm including cost of wind appliances hold fasts, furniture and fittings all as per standard specifications (single or double leaved door). Rate to include cost of labour, painting one priming coat and two coats of ready mixed synthetic enamel paint of approved make and colour. | 30 | SQM | | |
| 26 | Supplying, fabricating steel gate of 6.0 m wide as shown in the drawing transporting components to erection site and erection of fabricated steel work including all handling, leading, assembling, hoisting, erection in position and site welding/fastening, bolts wherever required as per drawing and specification. Rate to include providing PCC 1 : 4 : 8 for supporting the pillars, cost of raw steel, fabrication, erection, all consumables cement, labour charges etc., complete including synthetic enamel painting two coats over one coat of red oxide primer. | 4 | Nos | | |
| 27 | Providing supplying and fixing false ceiling of anodized Aluminium grid construction of main ceiling tees of size 25 x 38 x 1.8 mm cross tees of size 25 x 25 x 1.8 mm and wall angles of size 25 x 25 x1.8 mm forming a grid of 600 x 600 mm panels with various members for fastenings and fittings to minute tolerances, suspended from the steel purlins / trusses with 6mm Aluminium painted MS roads, J bolts, nuts, washers and all necessary hardware complete with perforated particle board ceiling tiles equivalent as mentioned in the Technical Specifications, 12mm thick complete and as directed by Engineer in charge. | 500 | SQM | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 28 | Supplying and fixing in position of 18 SWG steel rolling shutters of approved make , made up of 80 x 1.25 mm MS laths with 1.25 mm thick top cover interlocked together through the entire length and joined together at the end by end locks mounted on specially designed pipe shaft including erecting and fixing in position as directed by Engineer in charge with necessary side brackets, guide channels, top cover arrangements , inside and outside locking arrangements and providing a priming coat of red oxide primer and 2 coats of synthetic enamel paint of approved colour and quality etc. complete as per standard specifications. | 100 | SQM | | |
| 29 | Finishing walls with water proofing cement paint of required shade as per standard specifications for new work (two or more coats) as per instructions of Engineer in charge. | 8000 | SQM | | |
| 30 | Supplying and painting distemper two coats over a priming coat using best quality oil bound washable distemper of approved make and colour. Rate to include cost of cleaning and preparation of the surface, applying putty, labour, materials etc., complete. | 1000 | SQM | | |
| 31 | Supplying medium duty Galvanized Iron pipes of the following sizes at site of work, laying to proper line and level in ground or jointing and fixing on walls & floors for water supply pipe lines with all necessary specials, unions and appurtenances, testing as per standard specifications, making necessary earthwork in ground, holes, chases etc. on floor & wall and making good all damages and finishing to match with the existing work, refilling the trenches with excavated earth and filling chases & grooves in walls and all other incidental charges etc. complete. Rate to include cost of GI pipes, specials and all other works | | | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| a) | 40mm dia GI pipe line with specials | 100 | RM | | |
| b) | 25mm dia GI pipe line with specials | 100 | RM | | |
| c) | 20mm dia GI pipe line with specials | 50 | RM | | |
| d) | 15mm dia GI pipe line with specials | 50 | RM | | |
| 32 | Supplying at site of work and laying stoneware pipes of the following sizes in trenches and jointing with CM 1: 2 and testing with water as per standard specifications. Rate to include cost of stoneware pipes, specials, all jointing materials like hemp yarn, sand, cement, conveyance of water, tools & plants for testing , labour and all incidental charges etc. complete & includes earthwork excavation for trenches and back filling | | | | |
| a) | 100mm dia SW pipe line with all specials | 50 | RM | | |
| b) | 150 mm dia SW pipe line with all specials | 150 | RM | | |
| 33 | Floor finishing with 25 mm thick ironite floor laid in panels of 1mx1m, over a concrete base of 100mm thick, PCC 1:2:4 the concrete base of 100mm thick is to be laid using 20 mm down graded hard broken blue granite stone jelly. Floor finishing of 25 mm thick is to be laid while the base concrete is wet for proper bond, the bottom 15 mm thick consists of one part of cement and one part of 6 mm downgraded hard broken blue granite stone chips (the proportion being by volume) and the top 10mm finish with hardening compound of proportion one part of hardonite (irionite or equivalent) 4 parts of cement and 8 parts of 6mm downgraded hard broken blue granite stone chips (the proportion being by weight). Rate to include cost of 100mm thick base PCC 1:2:4 and top finish of 25 mm thick granolithic flooring including cost of materials, form work, finishing labour, cruring etc. complete as per standard specifications and instructions of Engineer in charge | 2800 | SQM | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 34 | Supplying and fixing in position 15 mm nominal size screw down type brass bib cock of approved make and quality (leader, dripless or orient ) as per standard specifications. Rate to include cost of bib cock, jointing materials, labour for carrying, fixing and testing etc. complete. | 10 | Nos | | |
| 35 | Supplying at site of work & fixing in position of 20 mm size brass stop cock of approved make and quality (leader, dripless or orient) as per standard specifications. Rate to include cost of stop cock, jointing materials, labour for carrying fixing and testing etc. complete. | 10 | Nos | | |
| 36 | Supplying at site of work and fixing in position of the following size of Gun metal wheel valve of approved make and quality ( leader,dripless or orient) as per standard specifications.Rate to include cost of wheel valve, jointing materials, labour for carrying , fixing & testing complete. | | | | |
| a) | 15mm dia nominal size wheel valve | 4 | Nos | | |
| b) | 20mm dia nominal size wheel valve | 4 | Nos | | |
| c) | 25mm dia nominal size wheel valve | 2 | Nos | | |
| d) | 40mm dia nominal size wheel valve | 4 | Nos | | |
| 37 | Supplying at site of work & fixing in position of high class, superior & approved make machined edge mirror of size 600 x 450 x 5.50 mm, mounted on 6 mm thick plywood sheet. Rate to include cost of all materials, wooden plugs, CP brass screws, clips, washers etc., complete. | 8 | Nos | | |
| 38 | Supplying at site of work & fixing in position 600 X 20 mm dia chromium plated wall mounted towel rod with brackets, etc. all complete as per specification. | 4 | Nos | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 39 | Supplying at site of work, carrying, laying, jointing and fixing in position of two white glazed earthern ware flat back type angular lipped urinals of 430 x 230 x 350 mm with one high level CI flushing tank of 5 litre capacity connected to both the urinals, tank, connecting pipes, painting one. | 4 | Set | | |
| 40 | Supplying at site of work, carrying, laying jointing and fixing in position of European type white glazed earthern ware water closet pan with seat and lid, C.P. Brass hinches and rubber buffers of size 580mm x 440 mm of approved quality and make with suitable P or S trap, 10 litre low level PVC flushing cistern (of approved make) with fittings, over flow arrangements with specials etc. complete. Rate to include cutting the walls and floors wherever required and making good all damages and finishing to match the existing work, cost of jointing materials, labour for carrying , fixing and testing and all other incidental charges etc. (Hindustan or Parryware ) | 2 | Nos | | |
| 41 | Supplying at site of work, carrying, laying jointing and fixing in position of Indian type white glazed earthern ware water closet pan of size 580 mm x 440 mm of approved quality and make with suitable P or S trap, 10 litre low level PVC flushing cistern (of approved make) with fittings, over flow arrangements with specials etc. complete. Rate to include cutting the walls and floors wherever required and making good all damages and finishing to match the existing work, cost of jointing materials, labour for carrying , fixing and testing and all other incidental charges etc. (Hindustan or Parryware ) | 2 | Nos | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 42 | Supplying at site of work, carrying and fixing in position of white glazed earthenware wash hand basin of size 580 x 430 x 225 mm of approved make quality ( Hindustan or Parryware ) with 2 numbers of ISA 40x40x4 mm angles for brackets painted with two coats of synthetic enamel paint, 15 mm CP brass S trap and unions, PVC waste pipe of 32mm dia of required length etc. complete. Rate to include cutting & making good the walls wherever required, cost of all materials, labour for carrying, laying , fixing and testing and all other incidental charges. | 4 | Nos | | |
| 43 | Supplying at site of work & fixing in position of 100 x 75 mm NAHANI trap with CI gratings as per standard specifications. Rate to include cost of all materials, labour for fixing, testing etc., complete. | 10 | Nos | | |
| 44 | Supplying at site of work & fixing in position of 150 mm stone ware GULLY trap and providing RCC precast slab covering etc., as per standard specifications. Rate to include cost of all materials, labour for fixing, testing and cost of RCC cover complete. | 2 | Nos | | |
| 45 | Flooring, dado or skirting with coloured ceramic tiles of required size as specified in tender specification laid in cement mortar 1:3, 12 mm thick over roughened wall or floor at any level including painting neatly with cement of appropriate colour etc., complete. | 200 | SQM | | |
| 46 | Construction of a masonry inspection chamber of size 60 x 60 cm internal using brick work in CM 1:6,and plastering in CM 1:5, bottom finished with PCC 1: 2: 4 making necessary chamfering etc., complete. | 10 | Nos | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 47 | Construction of a septic tank of size 6.00 x 2.40 x 2.70 metre and a cess pool of 3.00 metre dia as per drawing No. 2-BHE / SR / CVL / 04 / 00. Rate to include cost of Excavation, PCC, Brickwork, RCC works, Reinforcement, SW pipes, AC pipes, cowl, filling with aggregates cover slab, testing of the septic tank etc., complete as per drawing. | 1 | No | | |
| 48 | Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth. | 90 | SQM | | |
| 49 | Providing and laying non – pressure NP2 class( light duty ) RCC pipes with collars jointed with stiff of mixture of CM 1: 2 including testing of joints etc., complete. 250 mm dia RCC pipe. | 10 | RM | | |
| 50 | Providing and fixing 12 mm thick and 150 mm wide pelmet waith 25 mm dia aluminium curtain rod and brackets including fixing with 25 x 3 mm MS flat 10 cm long and plugs etc., complete in second class teak wood for all doors and windows. | 50 | RM | | |
| 51 | Supplying and fixing wooden frame (3" x 2") for fixing AC unit in brick wall. The size of wooden frame shall be 27" x 19". Rate to include the cost of wooden frame, labour charges for making opening and fixing the wooden frame with existing walls. | 6 | NOS | | |
| 52 | Supplying and fixing precast RCC jolly of 50 mm thick of size 450 x 300 mm as per standard specification. Rate to include cost of RCC jolly and labour charges for fixing in position etc., complete. | 5 | NOS | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 53 | Supplying and fixing sintex doors (single leaved door) at site of work with frames including fittings all as per standard specifications. Rate to include cost of labour and fittings etc., complete. | 14 | SQM | | |
| 54 | Supplying and fixing sintex tank at site of work for storing water .Rate to include cost of tank and other incidental charges etc., complete. | | | | |
| a) | 500 Litres capacity. | 2 | Nos | | |
| b) | 1000 Litres capacity | 2 | Nos | | |
| 55 | Supplying and erecting including assembling fitting and fixing 25 micron anodized or 50 micron powder coated Aluminium partition frames with matching doors etc., as per drawing with frames, shutters, double acting heavy duty floor springs, fittings, and fixtures, mortise lock, Aluminium beading and fixing 12 mm thick twin laminated particle board of NOVAPAN make or approved equivalent to aluminum partitions and door frame etc complete. Rate to include all Aluminium sections, particle board, fixtures etc. | 300 | SQM | | |

**TOTAL VALUE FOR I. PART A CIVIL WORKS RS**

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| | ***I PART B. STRUCTURAL WORK*** | | | | |
| 1 | Supplying raw steel, fabricating steel work and transporting to erection site and erection of fabricated steel work including all handling conveying, loading, assembling, hoisting, erecting in position and site welding and / or bolting wherever required & alignment of the structures as per drawings & specifications. Rate to include cost of raw steel, fabrication, bolts & nuts, welding, tools & plants, labour etc. painting two coats over steel works with synthetic enamel paint of BHEL approved make & color, brushing to give an even shade including cleaning the surface of all dust, dirt & other foreign matters, cost of paint & scaffolding charges all as per standard specifications. | 40 | MT | | |
| 2 | Supplying at site of work GI sheet as required, hoisting and fixing in position for roofing, gable end, side sheeting etc. including AC specials such as louvers, barge boards etc. on steel purlins and fixing them in position with necessary crank bolts, bitumen & GI washers etc. complete as per drawing, specifications and instructions of engineer in charge. Rate to include cost of AC sheet, labour and other incidental charges etc., complete. Payment will be made for laid area of roof only. | 3500 | SQM | | |
| 3 | Providing corrugated fibber glass reinforced polyester translucent roof light sheets of 3 mm thickness and fixing to match the GI / AC sheeting with necessary GI bolts, nuts and washers etc. complete. | 160 | SQM | | |
| **TOTAL VALUE FOR I. PART B STRUCTURAL WORKS RS** _____ | | | | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| | ***I PART C ELECTRICAL WORKS*** | | | | |
| 1 | Supplying and wiring with 1.5 Sq mm PVC insulated unsheathed copper conductor cable in rigid PVC conduit pipe for lights / fans with one number of 5 amps flush type switch. | 296 | Points | | |
| 2 | Supply and wiring with 1.5 Sqmm PVC insulated unsheathed copper conductor cable in rigid PVC conduit pipe for bell with one number of 5 amps flush type bell switch, including supply of calling bell of standard quality to be approved by Engineer- in-charge | 10 | Points | | |
| 3 | Supplying and wiring with 2.5 Sqmm PVC insulated copper unsheathed stranded conductor cable in rigid PVC conduit pipe 15 amps combined 5 amps ( 6 pin) flush type two – in – one switched socket with indicator on a suitable surface mounting PVC box with continuous run of number 14 GI wire earthing (Anchor / GPL / Ellora plate switched socket to be used ). | 42 | Points | | |
| 4 | Supplying and wiring 1.5 Sqmm PVC insulated copper unsheathed conductor cable in rigid PVC conduit pipe for 5 amps 3 pin switched socket of plate switch type with indicator on a suitable surface mounting PVC box with continuos run of number 14 GI wire for earthing ( Anchor / CCPL / Ellora plate switch type switched socket to be used). | 42 | Points | | |
| 5 | Supply and fixing of a single 4 feet 40 w tube light fitting on ceiling / wall with assembly, putty, electronic choke and starter of standard quality to be approved by Engineer in charge | 190 | Nos | | |
| 6 | Supply and fixing of water tight bulk – head fitting with guard and glass suitable for and with 60 watt lamp. | 28 | Nos | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 7 | Supply and fixing of 1400 mm sweep ceiling fan with 600 w anchor classic / supreme / rider make electroniregulator.(Bajaj,Kaithan,CGL) | 67 | Nos | | |
| 8 | Supply and fixing of 600 mm exhaust fan.(Bajaj,Kaithan,CGL) | 27 | Nos | | |
| 9 | Supplying and laying of two runs of 4 Sq.mm pvc insulated PVC sheathed standard copper conductor cable in rigid PVC conduit pipe using clamps on wall & continuous run of 14 gauge GI wire for earthing. The pipe should be concealed wherever necessary. | 1800 | RM | | |
| 10 | Supplying and fixing of 3 phase Energy metre of suitable capacity of 250A, with suitable whether proof meter box made out of 18 SWG of size 50 x 40 x 20 cm or near about to accommodate meter with peep through glass for meter reading, hinged doors with locking arrangements and meter card pockets. The meter box should be fixed as per instructions of engineer in charge and necessary painting shall be done as per IS including Supplying and fixing of 50 cm length 50 x 50 x 6 mm MS angle on wall with necessary hole with suitable bolt & nut for fixing service wire for the above meter. | 7 | Set | | |
| 11 | Supply and fixing of 415V,250A switch fuse units housed in MS sheet enclosure as per relevent standard and shall be of wall mounting type, secured over a 25 x 6 mm painted angle iron frame as per IS standard. | 7 | Nos | | |
| 12 | Supply and fixing of 32 A , 3 phase ,7W, TPN distribution board as per relevant standards with 32 A HRC backlite fuse unit block. Distribution board shall be mounted in a enclosure with hinched door and shall be provided with R,Y,B indicators, Volt meter with selector switch. The whole assembly be fixed on 50 x 50 x 6 mm painted angle iron frame embedded on wall.( more details ref specification | 7 | Nos | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 13 | Supply and fixing of 32 Amps. 3 phase lighting distribution board, having 1 number 32 amps TPN MCB for incomer with 9 numbers of 5A single pole MCB and 3 number of 16A single pole MCB. Llight Distribution board shall be made out of 2.5 mm sheet as per relevant standard, and fixing arrangement shall be as mentioned above. | 8 | Nos | | |
| 14 | Supply and fixing of 415V, 32A, 3 phase TPN change over switch, housed in MS sheet enclosure shall be of wall mounting type as per relevant standard. | 1 | Nos | | |
| 15 | Supply and fixing of 230V, 16 A 3 pin plug and socket with 16A MCB mounted in a metallic box and shall be of wall mounting type as per relevant standard. | 18 | Nos | | |
| 16 | Supply and erection of earth electrode using 50mm dia, 2.50 metre long GI pipe with alternate layer of salt and charcoal and with masonry chamber and RCC cover, and using 50 x 6 mm GI flat welded on the 50 mm pipe with a provision on GI flat for terminating the earthing conductor and in general conforming to is 3043. | 7 | Sets | | |
| 17 | Supply and laying of number 8 SWG GI wire for earthing. | 400 | RM | | |
| 18 | Supplying and fixing 1x 250W HPSV lamp fittings of approved brand outside the building including mounting brackets, wiring, providing individual switches etc., complete. Rate shall include cost of fitting with HPSV lamp 1 x 250W,control gears, angle frame/pipes for fixing the lights, labour charges for making holes and matching the same with existing wall as directed by Engineer in charge. | 4 | Nos | | |

| Sno | DESCRIPTION | QTY | UNIT | Rate | AMOUNT |
|---|---|---|---|---|---|
| 19 | Supply and fixing of 1000W halogen lamp fittings of approved brand outside the building including mounting brackets, wiring, providing individual switches etc., complete. Rate shall include cost of fitting with Halogen lamp 1 x 1000W, control gears, angle frame/pipes for fixing the lights, labour charges for making holes and matching the same with existing wall as directed by Engineer in charge. | 24 | Nos | | |
| **TOTAL VALUE FOR I PART ' C ' ELEC. WORKS : Rs _____** | | | | | |
| **TOTAL VALUE FOR PART (A+B+C):Rs_____** | | | | | |

# NOTE TO RATE SCHEDULE

1. The quantities indicated are only approximate and are subject to variation. Payment would be restricted to the actual quantity of work executed and measured.

2. Prices quoted above shall include supply of all construction materials and their transport, storage and preservation.

3. It shall be the responsibility of the contractor to get all the materials including sand, stone, jelly, Cement, Steel, bricks concrete Blocks etc., approved by Engineer-in-charge in advance before they are actually used on the work.

4. Exact location of electrical points will be identified by the BHEL Engineer at site during execution.

5. The unit rate quoted are to be kept firm till the entire work is completed. No revision of rates will be allowed under any circumstances on any account.

6. Tenderers are requested to stock adequate quantity of construction materials well in advance for facilitating uninterrupted and continuous work as there is likely hood of heavy demand for construction materials during monsoon period.

7. Tenderers are required to quoted their rates, only in the price bid (part II) provided by BHEL. Quoting of rates in any other form / formats will not be entertained.

8. The Price bid should contain signature of tenderer ( in all pages ) and their office seal . Over writing and corrections if any should be countersigned by authorized signatory.

SIGNATURE OF THE TENDERER