BHARAT HEAVY ELECTRICALS LIMITED
(A Government Of India Undertaking)
INSULATOR-PLANT,JAGDISHPUR

Tender for Extension of one room in existing "A" type

Tender Enquiry No:

TE-051 dated 22.06.2009

SECTION V

TECHNICAL SPECIFICATION

PART A: SPECIFIC TECHNICAL REQUIREMENTS

BHARAT HEAVY ELECTRICALS LIMITED
(A GOVERNFMENT OF INDIA UNDERTAKING)

SECTION V
PART - A
SPECIFIC TECHNICAL REQUIREMENTS

1.0 GENERAL

Part-A covers specific technical requirements of contract and should be read in conjunction with BOQ, Part-B and other sections of the contract. In case of any conflict between the contents of BOQ and Part-A, BOQ will prevail over Part-A. In case of any conflict between Part-A and Part-B, Part-A will prevail over Part-B.

2.0 FREE ISSUE MATERIALS

Nothing shall be supplied as free issue material by BHEL.

3.0 DISMANTLING OF EXISTING STRUCTURES

The contractor will have to carryout dismantling of buried/ semi buried structures, if any, encountered within the battery limit and disposal of it within 3 Km. as directed by BHEL at no extra cost to BHEL.

4.0 STATUTORY REQUIREMENTS

Bidder shall comply with all the applicable statutory rules pertaining to Factories Act. Fire Safety Rules of Tariff Advisory Committee, Water Act for pollution control, Explosives Act, etc.

Provisions of safety, health and welfare according to Factories Act shall be complied with locker room for workmen, pantry, toilets, rest room, etc.

Statutory clearances and norms of State Pollution Control Board shall be followed.

Bidder shall obtain approval of Civil/Architectural drawings from concerned authorities before taking up the construction work.

5.0 LAYOUT

Before starting the work, the Contractor shall carry out the setting out of foundation and structures and provide levels, with reference to general existing grid and bench mark. If the contractor uses the grid, , bench mark and reference pillar made by other Contractors, he shall coordinate with the Contractor and shall satisfy himself of the accuracy of the reference marks. If he is required to set out the foundation afresh, he shall do so independently with reference to the one existing grid and bench mark which has been followed by other agency at the instruction of the Engineer. In case any discrepancy be found. It shall be immediately brought to the notice of the engineer for any rectification/modification necessary. No complaint shall be entertained at a later stage. The Contractor shall accurately set out the position for holding down bolts and inserts.

If required, in the opinion of the Engineer, he shall construct and maintain pillars for Grid, references and bench marks and maintain them till the completion of the construction. He shall also help the Engineer with instruments, materials and labours for checking the detailed lay outs and levels. The Contractor shall be solely responsible for the correctness of the layout and levels, and Engineer's approval shall not be deemed to imply any warranty in carrying out the work correctly.

6.0 WORKMANSHIP

Workmanship shall be of the best possible quality and all work shall be carried out by skilled workmen except for those which normally require unskilled persons. In addition to the requirement specified above, if the bye-laws of the local Govt., Municipal or other authorities require the employment of licensed or registered workmen for various traders, the contactor shall arrange to have the work done by such registered or licensed personnel.In case of manufactured materials, the Contractor shall have, with no additional cost the owner, the services of the supervisors of the manufacturers to achieve that the work is being done according to the manufacturer's specifications.

7.0 TEMPORARY WORK

All scaffoldings, staging, temporary bracing and other necessary temporary work required for proper execution of the Contract shall be provided by the Contractor at his own cost and inclusive of all materials, labour, supervision and other facilities.

The layout and details of such Temporary work shall have the prior approval of the Engineer as agreed, but the Contractor shall be responsible for proper strength and safety of the same. All Temporary work shall be so constructed as not to interfere with any permanent work or with the work by other agencies. If it is necessary to remove any of the temporary work at any time to facilitate execution of the work or with the work of other agencies, such removal and re-erection, if required, shall be carried out by the Contactor at the discretion of the Engineer without any delay and any extra cost on this account shall be borne by the Contractor.

8.0 INTERFACE WITH STRUCTURES UNDER OTHER'S SCOPE

a) In cases of interface e.g. structures under other's scope of supply being supported on structures under scope of this contractor, the same will be discussed and suitably addressed.

b) Modification in layout of foundation/structure during detail engineering stage may be necessary to avoid fouling with those under other's scope. Necessary changes on this account will be made without any extra cost to Owner.

c) Necessary engineering is to be done and provisions are to be kept accordingly by the Contractor to construct foundations/underground structures, etc. without disturbing/ endangering the constructions done under the scope of other contracts.

9.0 INSPECTION, TESTING AND QUALITY CONTROL FOR CIVIL WORKS

Sampling and testing for major items of civil works viz earthwork, concreting, structural steel work (including welding) etc. shall be carried out in accordance with the requirements of this specification and field quality plan (FQP).

The bidder shall submit for BHEL's approval a detailed field quality assurance programme for civil works before starting of the construction work. This shall include frequency of sampling and testing nature/type of test, method of test, setting of a

testing laboratory, arrangement of testing apparatus/equipment, deployment of qualified/experienced manpower, preparation of format for record, Field Quality Plan, etc. Tests shall be done in the field and/or at a laboratory approved by the Engineer and the Bidder shall submit to the Engineer, the test results in triplicate. In addition, the bidder shall furnish the original test certificate from the manufacturer's of various materials to be used in the construction.

If any work found to be of inferior quality or sub-standard, the same shall be dismantled and shall be redone as per approved quality or relevant standard. BHEL reserve the rights to reject the work of inferior quality. All expenses on account of dismantling and rework shall be born by contractor.
Contractor shall arrange for conducting the initial and field CBR test for the road construction as per latest IRC guidelines. The contractor's finally accepted rates shall include cost of such field tests with standard equipments and IMTEs

10.0 CONSTRUCTION / ERECTION METHODOLOGY

- Construction excavation activities shall be fully mechanized from the start of the work.
- All excavation and backfilling work shall be done using excavators, loaders dumpers, dozers, poclains, excavator mounted rock breakers, rollers, sprinklers, water tankers, etc. Manual excavation can be done only on isolated place with specific approval of engineer.
- Dewatering shall be done using the combination of electrical and stand-by diesel pumps.
- For concreting, weigh batching plants, transit mixers, concrete pumps, hoists, etc. shall be used.
- All fabrication and erection activities of structural steel shall be carried out using automatic submerged arc welding machines, cutting machine, gantry cranes, crawler / wheel mounted heavy cranes and other equipments like heavy plate bending machines, shearing machines, lathe, milling machines etc. Use of derricks shall not be permitted.
- All handling of materials shall be with cranes. Heavy tailors shall be used for transportation.
- Mechanized modular units of scaffolding and shuttering shall be used.
- Grouting shall be carried out using hydraulically controlled grouting equipment.
- Roadwork shall be done using pavers, rollers and premix plant.
- All finishing items shall be installed using appropriate modern mechanical tools.
- Manual punching etc. shall not be permitted.
- Heavy duty hoist for lifting of construction materials shall be deployed.
- Compressors for cleaning of foundations and other surfaces shall be used.
- Field laboratory shall be provided with all modern equipment for survey, testing of aggregates, concrete, welding etc. For testing of steel works, ultra sonic testing machines, radiographic testing machines, dye penetration test equipment, destruction testing equipment, etc shall be deployed.
- All persons working at site shall be provided with necessary safety equipment and all safety aspects shall be duly considered for each construction/erection activity. Moreover, only the persons who are trained in the respective trade shall be employed for executing that particular work.
- Fabrication and Erection of all fabricated columns shall be done in single piece unless otherwise provided for in the approved drawings. Main columns of the

power house building can have maximum of one number of the erection splice. All shop and site splice shall suitably staggered. The erection splice shall be provided with full strength splice cover plate over the butt weld. Contractor shall submit the erection scheme for the erection of all type of structures and carryout the erection work only after approval of the scheme by the owner.

11.0 FIELD LABORATORY FACILITIES AT SITE FOR MATERIAL TESTING:

Contractor shall provide field testing facilities at site laboratory built by the contractor

12.0 MAKE OF BOUGHT OUT MATERIAL:

Contractor shall supply bought out items as per BOQ

Date of inviting Tender .....Date of opening of Tender.....

1. NAME OF WORK : EXTENSION OF A ROOM IN A-BLOCK QUARTERS

1.1 BILL OF QUANTITIES

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
1	Site clearance including up-rooting of tree roots, vegetation grass, bush, wood tress dressing and leveling complete.	1787.50	Sq.Mt.			
2	Layout of building including making of reference pillars etc complete .	798.00	Sq.Mt.			
3	Demolition of RCC work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 2 kms lead or as directed.	13.00	Cu.Mt.			
4	Demolition of Brick work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 2 kms lead or as directed.	13.00	Cu.Mt.			
5	Demolition of Door and Window and Clearstory window (Steel or Wood) shutter including Chowkhats as required etc. complete manually/ by mechanical means including stacking of materials and disposal of unserviceable material within 2 kms lead or as directed.	52	Nos.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
6	Dismantling old plaster or skirting, raking of joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within a lead of 2 kms or as directed.	520.00	Sqmt			
7	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means in foundation trenches or drains (not exceeding 1.5m in width or 10 sqm on plan) including dressing of sides and ramming of bottom, lift up to 1.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50m. All kind of soil.	572.20	Cu.Mt.			
8	Excavating Trenches of required width for Pipes/Cables etc. including excavation for Sockets, depth upto 1.5m including getting out the excavated materials back filling the soil in layers not exceeding 20cms in depth including consolidation of each deposited layer be ramming, watering etc. stacking serviceable material for measurements and disposal of unserviceable material as directed within a lead of 2kms for Pipes, Cables etc. exceeding 80mm dia. but not exceeding 300mm dia.	15.00	Rmt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
9	Felling of Trees of the girth measured at a height of 1 meter above ground level including cutting of Trunks and Branches, removing the roots and stacking of serviceable material and disposal of unserviceable material upto a distance of 2 kms. or as directed. The cut tress may be shipped in plant area.	5	Each			
10	Anti-termite treatment by injecting chemical emulsion and creating a chemical barrier under foundations and floors, junction of wall and floor, along the external perimeter of expansion joints, as per IS 6313 (part-II 1981) at the rate as specified.	1053.00	**Sq.Mt.**			
11	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:5:10 (1cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size).	184.00	Cu.Mt.			
12	Brick work with FPS bricks of class designation 75 in foundation and plinth in cement mortar 1:6 (1cement : 6 coarse sand)**.**	201.	Cu.Mt.			
13	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 (1cement : 2 coarse sand : 4 graded stone aggregate	156.00	Sq.Mt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
	12.5mm nominal size).					
14	Painting two coats of Air Blown Bitumen of 60/70 or 80/100 grade, @ 1 kg/Sqm in Ist coat and 0.7 kg/Sqm in subsequent coat over the Ist coat.	156.00	Sq.Mt.			
15	Brick work with FPS bricks of class designation 75 in superstructure above plinth level up to floor V level in all shapes and size in cement mortar 1:6 (1cement : 6 coarse sand).	358.00	Cu.Mt.			
16	Reinforced cement concrete work in lintel/roof bends (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up to floor five level excluding cost of centering, shuttering, finishing and reinforcement. 1:1.5:3 (1cement : 1.5coarse sand: 3graded stone aggregate 20mm nominal size).	57.00	Cu.Mt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
17	Reinforced cement concrete work in Slabs (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up to floor five level excluding cost of centering, shuttering, finishing and reinforcement. 1:1.5:3 (1cement : 1.5coarse sand: 3graded stone aggregate 20mm nominal size).	123.00	Cu.Mt.			
18	Centering and Shuttering including strutting, propping etc. and removal of formwork for Lintel, Beams, Slabs etc.	2050.00	Sq.Mt.			
19	Angle Iron Chowkhats made of 40x40x6mm angles with 6 nos 5" size hinges and Hold fasts.	2258.00	kg			
20	Providing and Fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows, including ISI marked black enameled MS butt hinges with necessary screws excluding paneling which shall be paid for separately.	170.00	Sq.Mt.			
21	Fixing of Door and Window Chowkhats.	208.00	Nos.			
22	12mm cement plaster of mix : 1:4 (1cement : 4 coarse sand) mortar.	1005.00	Sq.Mt.			
23	15mm cement plaster on the rough side of single or half brick wall of mix 1:6 (1cement : 6 fine sand).	2090.00	Sq.Mt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
24	12mm thick cement plaster of mix 1:6 (1cement : 6 fine sand).	3814.00	Sq.Mt.			
25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50m and lift up to 1.5m.	68.00	Cu.Mt.			
26	Supply and filling in plinth with Jamuna sand under floors including, watering, ramming consolidating and dressing complete.	57.00	Cu.Mt.			
27	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level in 1:4:8 (1cement : 4 fine sand : 8 graded stone aggregate 40mm nominal size).	46.00	Cu.Mt.			
28	25mm thick Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete. with 20mm nominal size stone aggregate.	753.00	Sq.Mt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
29	40mm thick cement concrete flooring with 3mm thick topping under layer 37mm thick cement concrete 1:2:4 (1cemnet : 2 coarse sand : 4 graded stone aggregate 20mm nominal size). This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.	82.00	Sq.Mt.			
30	Cement plaster skirting (up to 30cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement. 18mm thick.	90.00	Sq.Mt.			
31	Finishing walls with water proofing cement paint of required shade. New work/Old work (two or more coats applied @3.84kg/10sqm).	2600.00	Sq.Mt.			
32	White washing with Lime to give an even shade on New work/Old work two or more coats.	7500.00	Sq.Mt.			
33	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part-I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters: 35mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	190.00	Sq.Mt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
34	Providing and fixing fly proof galvanized MS wire gauze to windows and clerestory windows using galvanized MS wire gage with average width of aperture 1.4mm in both directions with wire of dia. 0.63mm. With 12mm mild steel U breading.	1076.00	Sq.Mt.			
35	Providing and fixing MS grills of required size and pattern in frames of windows and clerestory windows etc. with MS flats with square or round bars etc. all complete fixed to steel windows by welding.	1115.00	Sq.Mt.			
36	**Door and Windows fittings.**					
(i)	Providing and fixing ISI marked oxidized MS sliding bolt with nuts and screws etc. complete 250x16mm	52	No.			
(ii)	Providing and fixing ISI marked oxidized MS tower bolt black finish (barrel type) with necessary screws etc. complete 250x10mm.	104	No.			
(ii)	Providing and fixing ISI marked oxidized MS tower bolt black finish (barrel type) with necessary screws etc. complete 150x10mm	208	No.			
(iii)	Providing and fixing ISI marked oxidized MS handles confirming to IS 4992 with necessary screws etc. complete 125mm.	156	No.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
(iv)	Providing and fixing ISI marked oxidized MS handles confirming to IS 4992 with necessary screws etc. complete 10mm.	208	No.			
(v)	Providing and fixing oxidized MS Hasp and Staple (safety type) confirming to IS 363 with necessary screws etc. complete 150mm.	156	No.			
37	Painting with synthetic enamel paint of approved brand and manufacture of required color to give an even shade: Two or more coats on new work over and including wood or steel primer complete of suitable shade with ordinary paint of approved brand and manufacture.	475.00	Sq.Mt.			
38	40mm thick Insulation layer of sand and clay over RCC roof.	853.00	Sq.Mt.			
39	Two coats of water proof paint which shall be applied over RCC Slab as per manufacturer specification.	853.00	Sq.Mt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
40	10cm thick (average) mud Phaska of damped brick earth on roofs laid to slope consolidated and plastered with 25mm thick mud mortar with Bhusha at 35 kg per cum of earth and Gobri leaping with mix 1:1 (1clay : 1 cow-dung) and covered with machine molded tile bricks of class designation 125 conforming to IS : 2690 (Part-I) - 1992 grouted with cement mortar 1:3 (1cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement and finished neat. with machine molded FPS brick tiles.	857.00	Sq.Mt.			
41	Making construction joint Lip type in terraced roof with filler tile etc.	215.00	Rmt.			
42	Providing, hoisting and fixing up to floor five level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like including the cost of required centering, shuttering, finishing smooth with 6mm thick cement plaster 1:3 (1cement : 3 fine sand) on exposed surfaces complete but excluding cost of reinforcement with 1:2:4 (1cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size).	9.00	Cu.Mt.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
43	Reinforcement for RCC work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars.	114.00	Quintal			
44	Providing and fixing unplasticised- PVC pipe 110mm dia clips of approved design to unplasticised- PVC rain water pipes by means of 50x50x50mm hard wood plugs, screwed with MS screws of required length including cutting brick work and fixing in cement mortar 1:4 (1cement : 4 coarse sand) and making good the wall etc. complete.	345.00	Mt.			
45	Making Khurra 45x45cms with average minimum thickness of 5cms Cement concrete 1:2:4 (1 cement, 2 coarse sand and 4 stone aggregate 20mm nominal size) over PVC sheet 1mx1mx 400 micron finished with 12mm cement plaster 1:3 (1 cement and 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complete.	50	Nos.			

S.No	Contents	Quantity	Unit	Rates		Total Amoun (Rs.)
				in Figs	in Words	
1	2	3	4	5	6	7
46	Making Plinth protection 50mm thick of cement concrete 1:3:6 (1 cement, 3 coarse sand and 6 graded 20mm nominal size stone aggregate) over 75mm bed of dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing to top smooth.	954.00	Sq.Mt.			
47	Removing of existing doors or quarters for laying of Tiles and fixing the door after cutting from bottom as necessary complete as per direction of Engineer in-charge.	364	Nos.			
48	Supply and filling of good earth in layers not exceeding 20cms in depth including ramming complete as per direction of Engineer in-charge.	250.00	Cu.Mt.			
TOTAL :						

Place ……..
Date ……..

Signature of Contrac

BHARAT HEAVY ELECTRICALS LTD.,
INSULATOR PLANT, JAGDISHPUR INDL AREA - 227817 (UP)
Phone: 05361-270 123, Fax: 05361- 270 123
Email: kd@bhelepd.com

OPEN TENDER NOTICE

Ref: TE No. -51
Date:22.06.09

Sealed tenders are invited in two-bid system from experienced contractors for the following works for Insulator- Plant at I.A. Jagdishpur, Distt Sultanpur (U.P)

Sr. No	Scope of work	EMD (Rs)	Issue of Tender documents	Last Date of Submission	Tender opening date & time
1.	Tender for extension of one room in existing "A" type quarters at I.A. Jagdishpur Tender Enquiry No:051 Dated:-22.06.09	150000.0 (One lacs fifty thousand only)	From 25.06.09 to 22.07.09	15.00 hrs on 23.07.09 in tender box at Adm.Bldg.I.P.Jagdishpur	Techno-commercial Bid on:23.07.09 at 1200 hrs at BHEL, I.P. Jagdishpur

Cost of each tender documents: Rs 2500/- (Non- refundable)
Interested bidders may obtain tender documents from the office of Engineer(Civil), BHEL,I.P. Jagdishpur on all working days by submitting demand draft towards cost of tender documents in favour of '**Bharat Heavy Electricals Ltd**.' Payable at State Bank Of India, I.G.F.C.C. Branch Industrial Area Jagdishpur, Distt. - Sultanpur (U.P).Pin 227817
Or Bank Of Baroda Industrial Area Jagdishpur Distt Sultanpur (U.P.) Pin 227817.Kindly visit www.bhel.com for all Tender related details, corrigendum, extension notification of above tenders if any. BHEL reserves the right to accept or reject any of the tenders.

AGM (P/MM/Engg./C/IT)