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TENDER SPECIFICATION

TENDER NO. BHEL/NR/SCT/ANPARA – D/CIVIL/620

FOR

**“Soil Improvement and Boundary Wall Package for 2 x 500 MW, Anpara-D
Thermal Power Station at Anpara , Distt. Sonbhadra UP.”**

PART II – PRICE BID



Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301(INDIA)



ISO 9001-2000, ISO
14001 and OHSAS 18001
certified company
SubContract and
Purchase Deptt.

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
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IMPORTANT NOTE

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THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

RATE SCHEDULE

2X500 MW ANAPARA-D' TPS						
BILL OF QUANTITIES FOR GENERAL CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR BOUNDARY WALL AND SOIL IMPROVEMENT						
SL NO	ST. NO	DESCRIPTION	UNIT	QUANTITY	UNIT RATE (IN Rs.)	AMOUNT (IN Rs.)
	100	EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION AND DRAWINGS				
	101	Earth work in excavation upto 2 M below ground level but for a lift upto 2m for foundation, trenches, pipe lines, storm water drains etc including setting out, clearing & grubbing, removal of debris, dewatering if required, strutting, shoring/sheet piling/cofferdam if required, dressing the sides, levelling to grade and ramming the bottom, loading, unloading, stacking/disposal of surplus excavated material within a lead upto 100m etc complete for the following.				
1	i)	In all types of soils including ash, morrum, laterite etc.	CUM	64000		
2	ii)	In soft rock and weathered rock which can be excavated by means of crow bar, pick axe etc. but does not require chiselling, chemical grouting and blasting.	CUM	6000		
	102	Extra over item 101 for all types of soil/rock for additional depth beyond the initial depth of 2 meters all complete as per specification, drawings and instructions of the engineer for the following depth:				
	i)	in all types of soils				
3	a	lift beyond 2.0 m and upto 4 m	CUM	8000		
4	b	lift beyond 4 m and upto 7 m	CUM	2000		
	ii)	In all types of rocks				
5	a	lift beyond 2 m and upto 4 m lift beyond 2 m and upto 4 m	CUM	2000		
6	b	lift beyond 4 m and upto 7 m	CUM	1000		
	103	Extra over item 101 for carriage of all types of excavated materials (soil/rock) beyond the initial lead of 100 m (payment upto initial lead, loading, unloading disposal etc included in item 101) all complete as per specifications, drawings and instructions of the engineer for the following leads.				
7	i)	lead beyond initial lead of 100 m but not exceeding 500 m	CUM	10000		
8	ii)	lead beyond 500 m and not exceeding 1 Km	CUM	5000		
9	iii)	lead beyond 1 Km and not exceeding 2 Km	CUM	3000		
10	iv)	lead beyond 2 Km and not exceeding 3 Km	CUM	3000		

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SL NO	ST. NO	DESCRIPTION	UNIT	QUANTITY	UNIT RATE (IN Rs.)	AMOUNT (IN Rs.)
	105	Back filling using selected excavated materials in trenches, plinths, sides of foundations and other underground structures, pipes, are levelling etc. in layers not exceeding 250 mm thickness including lead upto 100 m but for all lifts including loading from stock pile, carting, unloading, filling, watering and compacting/ramming each layer etc all complete as per specification, drawings and as directed by the engineer to achieve the following densities:				
11	i)	Ordinary manual compaction	CUM	2000		
12	ii)	90% Standard Proctor density	CUM	60000		
13	iii)	95% Standard Proctor density	CUM	2000		
	106	Back filling using selected materials in trenches, plinths, sides of foundations, in the space below the grade level slab and other under ground structures, pipes etc. in layers not exceeding 250 mm in thickness including all lifts and including excavating, loading, unloading, carting, filling, watering and compacting/ramming each layer etc all complete as per specification, drawings and as directed by the engineer for the following.				
	i)	With selected soil brought from borow areas to be arranged by the contractor including royalties, fees etc if any for all lifts and leads and compacted to following densities.				
14	a)	90% Standard Proctor density	CUM	2000		
15	b)	95% Standard Proctor density	CUM	2000		
	ii)	With selected ash brought from borow areas (borrow area to be arranged by owner at free of cost) from the ash pond for all leads and lifts and compacted to following densities				
16	a)	90% Standard Proctor density	CUM	2000		
17	b)	95% Standard Proctor density	CUM	2000		
	200	PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING, (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) COMPLETE AS PER DRAWING AND SPECIFICATION UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING: (CEMENT WILL BE ISSUED BY BHEL AS FOC ITEM)				

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SL NO	ST. NO	DESCRIPTION	UNIT	QUANTITY	UNIT RATE (IN Rs.)	AMOUNT (IN Rs.)
18	202	Concrete of grade M10 as lean concrete, levelling course , mud mat under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	1250		
19	205	Concrete of grade M-25 in underground structures like foundations, columns below finish floor level, plinth beams, slab-on-grade, drains etc complete with 20 mm nominal size graded aggregate.	CUM	4000		
20	206	Concrete of grade M-25 in superstructure from finished floor level complete at all heights with 20 mm nominal size graded aggregate	CUM	2000		
	300	SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATIONS FOR ALL STRUCTURES, AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS AND CENTEREING COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING:				
21	301	Ordinary form work below finished ground floor level for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	10000		
22	302	Fairface form work below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. for exposed concrete works.	SQM	2000		
23	303	Ordinary form work above finished ground floor level for columns, beams, suspended floors roofs lintels cantilevers staircases landings balconies suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	5000		
24	304	Fairface form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	15000		
	400	REINFORCEMENTS				
25	402	Straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in concrete including cost of binding wire, labour etc. complete all as per specifications & drawings.	MT	800		
	500	WATER PROOFING AS PER SPECIFICATIONS.				
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SL NO	ST. NO	DESCRIPTION	UNIT	QUANTITY	UNIT RATE (IN Rs.)	AMOUNT (IN Rs.)
26	503	Providing two coats of hot bituminous paint on concrete surfaces in contact with soil/ash in foundations using grade 85/25 confirming to IS 702 @ 1.7 kg/sqm.	SQM	23000		
27	504	Providing and mixing approved water proofing compound in concrete or cement mortar for works wherever specified or directed as per specification/manufacturer's instructions, testing of samples for water proofing etc. complete.	KG	600		
	1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR ETC. COMPLETE, AS PER SPECIFICATIONS. (CEMENT WILL BE ISSUED BY BHEL AS FOC ITEM)				
	1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and				
28	i)	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2	CUM	4000		
29	ii)	Using clay ash bricks shall be as per IS 13757 with crushing strength of 75 kg/cm2 and minimum percentage of fly ash shall be 25%	CUM	2000		
	1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC., COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGSAS SPECIFIED/SHOWN ON DRAWINGS. (CEMENT WILL BE ISSUED BY BHEL AS FOC ITEM)				
30	1101	Damp Proof Course 50mm thk. 1:1.5:3 concrete (10mm down aggregate) with 2% of approved admixture of water proofing compound. Hot bitumen @ 1.7Kg./sqm shall be applied before & after the DPC as per specification. (Supply cost of Waterproofing Compound will be paid as per item 504)	SQM	2500		
	1200	CEMENT MORTOR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC. COMPLETE AS PER SPECIFICATION (CEMENT WILL BE ISSUED BY BHEL AS FOC ITEM) :				
31	1201	Providing 12 mm thick plaster in cement mortar 1:6 on walls, finished to a smooth finish as per specification.	SQM	18000		

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SL NO	ST. NO	DESCRIPTION	UNIT	QUANTITY	UNIT RATE (IN Rs.)	AMOUNT (IN Rs.)
32	1204	Providing 18 mm thick plaster in two layers in cement mortar 1:6 on walls finished to a rough finish as per specification.	SQM	18000		
	1300	FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC. ALL COMPLETE (PAINTS OF REPUTED BRAND OF REPUTED MANUFACTURER LIKE IC/BURGER/ASIAN PAINTS OR EQUIVALENT)				
33	1301	Providing and applying 2 or more coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	SQM	36000		
	2000	FENCING AND GATES.				
34	2001	Supplying and fixing G.I. barbed wire of size designation of 3 conforming to IS 278:1978 in fencing as per drawing and specification	MT	15		
35	2002	Supply, fabrication and installing in position of MS Gates, fabricated out of channels, joists, angles, flats, plates, pipes & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, ball bearing arrangements, castor wheels, Y type angle for barbed wire fencing, all complete with primer and final painting as per drawing, specification and as directed by Engineer-in-charge with 600 mm high GI barbed wire fencing at top all complete.	MT	14		
36	2003	Providing , laying and fixing Galvanized Concertina Spiral Wire Fencing over Boundary Wall min 2.5 mm dia (including GI clips etc.) clamped to vertical Y-Shaped angle post of 600mm High(min) @ 3000mm c/c complete as per specification.(cost of angle post paid separately elsewhere)	MT	7		
	2004	Providing, fabricating, transporting, erecting and installing at all elevations miscellaneous steel/PVC sections and pipes , including the cost of labour, material and equipment, setting material in concrete, layout, scaffolding, handling at site, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete as per drawings and specifications and instructions of engineer.				
37	i)	MS pipes / sections of all diameters / sizes	Quintal	100		
38	ii)	PVC conduits of all sizes	Quintal	100		

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SL NO	ST. NO	DESCRIPTION	UNIT	QUANTITY	UNIT RATE (IN Rs.)	AMOUNT (IN Rs.)
39	2005	Fabrication, erection, alignment, welding, primer painting (primer coat consisting of 2 coats of redoxide zinc chromate as per IS:2074 & IS:1477 (Parts I & II). One coat to be applied at shop and the other after erection) of structural steel made from mild steel conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052 and mild steel rounds, at all elevations involving rolled sections (including mild steel rounds), built up sections fabricated out of plates, rolled sections and combination of plates and rolled sections, in Boundary Wall (STEEL WILL BE ISSUED BY BHEL AS FOC ITEM)	MT	10		
	3000	GROUND IMPROVEMENT BY COMPACTION STONE COLUMN				
40	3001	Providing and installing 500mm diameter and 12m long driven cast-in-situ compaction stone column by driving of suitable MS casing pipe (removable) having a detachable M.S.shoe (flat/conical) at the bottom and filling inside the casing pipe in layers of 1m using 1(sand):2(gravel; gravel shall be 50mm & down) and each layer be well compacted by dynamic compaction method (before compaction lift the casing for 800mm from bottom and then the backfill shall be thoroughly compacted. This procedure shall be repeated for every layer till the ground level is reached) for ground improvement of pond ash deposit at desired locations including all materials, labour etc complete as per specification, drawings and as directed by the engineer-in-charge.	Each	15000		
41	3002	Extra over Item no:3001 for increase in length of driven cast-in-situ compaction stone column over the specified length of 12 m.	M	5000		
42	3003	Rebate on Item no:3001 for decrease/reduction in length of driven cast- in-situ compaction stone column on the specified length of 12 m.	M	5000		
43	3004	Excavating trial pit of size 3m x 3m at various locations upto a maximum depth of 4m depth below ground level in all types of soil, fly ash and weathered rock which can be excavated with pick axe/crow bar etc including sheeting or shoring the sides for the purpose of stability, dewatering and maintaining the pit dry at all times, collecting disturbed/undisturbed samples at 1m interval and at final depth and transporting all the collected samples to the laboratory; backfilling of the pit with excavated material etc all complete as per specification and as directed by the engineer-in-charge.	CuM	630		
44	3005	Conducting plate load test in various locations at specified depth complete as per specification, drawings and as directed by the engineer-in-charge. Payment for making the pit of suitable size, maintaining it dry and backfilling etc shall be paid separately as per item no. 3004	Each	10		
	3100	GROUND IMPROVEMNET BY COMPACTION STONE COLUMN FOR BTG AREA				

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SL NO	ST. NO	DESCRIPTION	UNIT	QUANTITY	UNIT RATE (IN Rs.)	AMOUNT (IN Rs.)
45	3101	Providing and installing 600 mm diameter and 13 m long driven cast-in-situ compaction stone column by driving of suitable MS casing pipe (removable) having a detachable M.S.shoe (flat/conical) at the bottom and filling inside the casing pipe in layers of 1m using 1 (sand) : 2 (gravel; gravel shall be 50mm & down) and each layer be well compacted by dynamic compaction method (before compaction, lift the casing for about 800mm from bottom and then the backfill shall be thoroughly compacted. This procedure shall be repeated for every layer till the ground level is reached) for ground improvement of pond ash deposit at desired location including all materials, equipments etc complete as per specification, drawings and as directed by the engineer-in-charge.	Each	22800		
46	3102	Extra over Item no:3001 for increase in length of driven cast-in-situ 600 mm diameter compaction stone column over the specified length of 13 m.	M	6000		
47	3103	Rebate on Item no:3001 for decrease/reduction in length of driven cast-in-situ 600 mm diameter compaction stone column on the specified length of 13 m.	M	4000		
48	3104	Performing dynamic cone penetration test at various locations using 50mm cone without bentonite slurry etc all complete as per specification, drawings and as directed by the engineer-in-charge as per IS:4968 Part I.	Each	140		
Total Price						

NOTES:

- 1 In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item. But the work, if awarded, will be on the lowest quoted rate obtained against that item.
- 2 The rate shall be entered in figures as well as in words. In case of difference in rates between words and figures, the lesser of the two will be treated as valid rate.
- 3 The bidders shall enter both 'Unit Rate' & 'Amount'. In case of any mismatch between 'Total Amount based on Unit rate' & 'Total Amount as quoted', the higher of the two shall be considered for evaluation and the lower of the two shall be considered for award.
- 4 The quantities indicated against each item above are tentative and are liable to vary depending upon the site requirement. The contractor has to supply/ install actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out.
- 5 Evaluation of the bids shall be done based on total price against this BOQ