

# **TENDER SPECIFICATION**

**BHEL: PSSR: SCT: 1450**

**FOR**

Civil foundation for Boiler, ESP, Power House, TG, Mill Bay and other Main Plant buildings / structures for units 1&2 of 2 x 800 MW

at

Yermarus Thermal Power Station, Yermarus,  
Raichur Dist, Karnataka

**VOLUME – II RATE SCHEDULE**



**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: 1450**

for

Civil foundation for Boiler, ESP, Power House, TG, Mill Bay and other Main Plant buildings / structures for units 1&2 of 2 x 800 MW at Yermarus Thermal Power Station, Yermarus, Raichur Dist, Karnataka

Volume II RATE SCHEDULE

**BOOK SLNO :** \_\_\_\_\_  
Issued to  
M/s

Refer NIT for Last date of submission

Please note this tender document is not transferable

For and on behalf of  
**BHARAT HEAVY ELECTRICALS LIMITED**

**ADDL GENERAL MANAGER / CONTRACTS**

Place: Chennai -35

## **PREAMBLE TO THE SCHEDULE OF QTS. (SOQ)**

- 1) Details of the items in this Schedule shall be read in conjunction with the corresponding specifications and documents and shall have precedence over any contrary statement mentioned any where in this document.
- 2) The work shall be carried out as per construction drawings (which will issued progressively during the execution), specifications, the description of the items in this schedule and/or Engineer's instructions., The layout, sizes and details of the building, structures and foundations may vary at a large extent during actual construction.
- 3) Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- 4) Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour, materials, levies , taxes , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services , temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 5) The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and leveling etc., required for commencement of site activities. No separate payment will be made towards the same.
- 6) The rate shall also be inclusive of carrying out survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references , pillars and other identification marks etc. No separate payment will be made towards the same.
- 7) Engineers decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.
- 8) Unless otherwise specified in the schedule of items Structural and Reinforcement steel will be issued by BHEL as FREE ISSUE for incorporation in the permanent works as specified elsewhere in this tender document.
- 9) Incase of any discrepancy between item description, relevant drawing and/or specification clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.
- 10) Refer the relevant clauses in the GCC for payment of additional items and Quantity variation.
- 11) Refer Clause 26.0 in NIT for order of precedence.



**RATE SCHEDULE FOR TENDER SPECIFICATION BHEL PSSR SCT 1450  
2x800 MW YERMARAS THERMAL POWER STATION**

**Civil foundation for Boiler, ESP, Power house, TG, Mill bay and other main plant buildings/Structures including Levelling and Grading.**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
<b>PART-A : LEVELLING AND GRADING</b>							
2	<b>Earth work in stripping</b> of top soil upto a maximum <b>depth of 0.30m</b> below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a <b>lead upto 1km</b> etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	43365				
3	Earth work in excavation upto any <b>depth below ground level in all types of soil</b> including moorum, ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a <b>lead upto 1km</b> , spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	106000				
4	<b>Earth work in excavation</b> upto any depth below ground level in <b>soft rock</b> (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc (but does not require chiselling or blasting) for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking/disposal of surplus excavated materials within a <b>lead upto 1km</b> , spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	100000				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
5	<b>Earth work in excavation</b> upto any depth below ground level in <b>hard rock requiring blasting</b> (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a <b>lead upto 1km</b> , spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	55000				
6	<b>Earth work in excavation</b> upto any depth below ground level in <b>hard rock requiring controlled blasting</b> including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated materials within a <b>lead upto 1km</b> , spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	10000				
9	<b>Earth work in filling</b> upto any depth below ground level for grading to proper grade and level in layers <b>not exceeding 300mm loose thickness</b> with selected approved soil from compulsorily <b>excavated soil available within a lead upto 1km</b> and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.						
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	50000				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
10	Extra over ST No. 1 to 9 for carriage of unserviceable material/earth for every 1 km or part thereof beyond an initial lead of 1km.	CUM	30000				
12A	Providing and laying <b>300 mm thick stone pitching</b> including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	2400				
	<b>RETAINING WALL</b>						
13	Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	1235				
14	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	1000				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
15	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, deawtering (wherever required), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	235				
16	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness <b>using/with approved borrowed soil</b> (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty (if any), watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.						
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	1413				
17	Extra over Item No. 13, 14 & 15 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	1057				
18	Concrete of <b>grade M15</b> (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as <b>lean concrete, levelling course</b> , mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	140				
19	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size <b>in substructure/superstructure</b> at any level above/below finished floor level, any shape, position or thickness etc complete including use of plasticizer/superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete <b>as per specification &amp; drawing for the following.</b>						
	M25 Grade	CUM	1100				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
20	Fairface form work with good quality water proof ply wood of required thickness and smooth surface <b>below/above finished ground floor level</b> for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	4400				
21	Straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements of TMT steel of grade Fe-500D or 500EQR</b> confirming to <b>IS:1786</b> including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. <b>(Supply of steel by BHEL)</b>	MT	125				
22	Supplying & installation of <b>bitumen impregnated fibre board</b> confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.						
c	25 mm wide joints.	SQM	62.5				
23	Supplying and filling in position hot applied <b>bitumin sealing compound</b> (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.						
c	20mmX25mm	RM	225				
24	Providing and applying two coats of bitumen grade 85/25 as per IS 702 ( @ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	1500				
25	Providing and fixing <b>weep holes</b> in Retaining wall consisting of <b>100 mm dia HDPE pipe sleeves</b> with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	225				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
26	Supplying, stacking and laying <b>150 mm thick sand filter</b> of approved quality behind retaining wall including screening, washing (wherever required), watering, compaction, dressing, necessary trimming if any including all leads and lifts etc all complete as per specification and as directed by the engineer-in-charge.	CUM	300				
27	Supplying, stacking and laying <b>150 mm thick gravel filter</b> of approved quality behind retaining wall including screening, washing (wherever required), watering, compaction, dressing, necessary trimming if any including all leads and lifts etc all complete as per specification and as directed by the engineer-in-charge.	CUM	300				
<b><u>PART-B : CIVIL FOUNDATION</u></b>							
<b>100 EARTH WORK</b>							
<b>Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following.</b>							
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	32000				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	4000				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	2000				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	400				
102	Extra over ST No. 101 for dewatering of ground water by <b>well point method</b> as per IS 9759.	CUM	1000				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
103	<b>Earth work in excavation in soft rock</b> (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	36760				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	48000				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	8000				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	600				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	600				
104	<b>Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting)</b> including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	12000				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	16000				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	20000				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	2000				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	2000				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
f	Depth exceeding 10 m but not exceeding 15 m	CUM	1200				
105	<b>Earth work in excavation in hard rock requiring controlled blasting</b> including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	1720				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	2000				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1200				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	400				
107	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with <b>selected materials from compulsorily excavated soil</b> available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.						
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	8000				
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	16000				
c	Each layer compacted so as to achieve at least 85% maximum dry density as per IS-2720 (Part-VII)	CUM	6000				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
108	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials <b>directly from excavation</b> and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.						
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	2680				
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	5360				
c	Each layer compacted so as to achieve at least 85% maximum dry density as per IS-2720 (Part-VII)	CUM	2680				
109	<b>Extra over ST No. 101 and 103 to 107</b> for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	126000				
110	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness <b>using/with approved borrowed soil</b> (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty (if any), watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.						
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	6920				
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	60000				
c	Each layer compacted so as to achieve at least 85% maximum dry density as per IS-2720 (Part-VII)	CUM	800				
d	Each layer compacted so as to achieve at least 75% relative density as per IS-2720 part XIV in case of sandy soils.	CUM	2000				
e	Each layer compacted so as to achieve at least 70% relative density as per IS-2720 part XIV in case of sandy soils.	CUM	1200				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
111	<b>Supplying and filling sand</b> upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	5000				
<b>200 CONCRETE WORKS</b>							
<b>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) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.</b>							
201	<b>Concrete of grade M10</b> (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as <b>filling course</b> at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	375				
202	Concrete of <b>grade M10</b> (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as <b>lean concrete, levelling course</b> , mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	125				
203	Concrete of <b>grade M15</b> (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as <b>lean concrete, levelling course</b> , mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	1875				
204	Concrete under floors, paving, plinth protection, pipe encasing, drains etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level of ground floor for the following grades.						
a	M15 Grade	CUM	225				
b	M20 Grade	CUM	1275				
c	M25 Grade	CUM	825				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size <b>in foundations/substructure, grade slab, drains, under floors</b> etc at any level below finished floor level of ground floor, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete <b>as per specification &amp; drawing for the following.</b>						
a	M25 Grade	CUM	27200				
206	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size <b>in superstructure</b> at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete <b>as per specification &amp; drawing for the following.</b>						
a	M25 Grade	CUM	1050				
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade <b>M-30 Grade</b> in machine foundations for TG, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level <b>except TG deck, TG foundation columns and top decks</b> supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	3800				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
208	<p>Providing and laying Design Mix cement concrete as per IS:456 &amp; IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in <b>top decks of all machine foundations</b> supported on vibration isolation system (excluding supply and installation of vibration system) and <b>top deck of TG foundation at all levels, TG foundation columns</b> including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to</p> <p>give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.</p>						
b	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	3000				
209	Extra over St. No. 205 to 208 for <b>controlling of temperature</b> of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM of Concrete	6800				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete <b>in water retaining/conveying structures</b> including addition of suitable plastisizer cum waterproofing cement additives conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades.						
b	M 30 grade	CUM	2450				
215	<b>Dismantling concrete</b> work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.						
a	Plain cement concrete of all grades	CUM	2.5				
b	Reinforced cement concrete of all grades	CUM	5				
216	<b>Chipping of concrete</b> in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	250				
217	Extra over and above St No 216 for <b>cutting of reinforcement</b> , all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	10				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	50				
219	Providing and applying <b>curing compound</b> of approved make where ever required as per manufacturer's specification.	SQM	6000				
<b>300 FORM WORKS</b>							
<b>Providing, 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. complete as per drawing, specifications and as per direction of engineer in charge for the following.</b>							
301	<b>Fairface form work</b> with good quality water proof ply wood of required thickness and smooth surface <b>below finished ground floor level</b> for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	91307				
302	<b>Fairface form work</b> with good quality water proof ply wood of required thickness and smooth surface <b>above finished ground floor level</b> for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights.	SQM	2625				
303	<b>Fairface Formwork</b> with good quality water proof ply wood of required thickness and smooth surface <b>for TG</b> superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.	SQM	2725				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
304	Providing, fixing and removing <b>formwork in block-outs/pockets</b> and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.						
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	85				
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	50				
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	12.5				
<b>400 REINFORCEMENT</b> (BHEL will supply Reinforcement Steel as a free issue. However transporting from BHEL stores at RTPP-8 unit yard which is approx. 10km from the existing site is in agency's scope. The Steel will be issued to the agency in standard lengths. In some instances for 8mm, 10mm & 12mm dia steel will be supplied in coil form. No extra claims against issue of non-standard lengths and de-coiling of 8mm,10mm & 12mm.)							
401	Straightening, cutting, bending, placing in position at any level, binding of <b>mild steel reinforcements</b> conforming to grade 1 of IS:432 part 1 in concrete including binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings. <b>(Supply of steel by BHEL)</b>	MT	105				
403	Straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements of TMT steel of grade Fe-500D or 500EQR</b> conforming to <b>IS:1786</b> including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. <b>(Supply of steel by BHEL)</b>	MT	3836				
<b>500 WATER PROOFING WORKS</b>							

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
	<b>Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>						
509	<b>Providing and applying two coats of bitumen grade 85/25</b> as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	80000				
511	<b>Providing and mixing water proofing compound</b> conforming to IS:2645 in concrete or cement mortar all complete.	KG	138.5				
512	<b>Anti termite chemical treatment of soil</b> with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	12500				
<b>600 JOINTS AND FILLERS</b>							
<b>Joints &amp; fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
601	Supplying & installation of <b>bitumen impregnated fibre board</b> confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.						
a	12 mm wide joints.	SQM	3				
b	20 mm wide joints.	SQM	5				
c	25 mm wide joints	SQM	105				
d	50 mm wide joints	SQM	344				
602	Providing and applying <b>polysulphide based sealant</b> conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:						

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
b	20mmX25mm	RM	50				
606	Providing and fixing <b>PVC water stops</b> in joints conforming to IS 12200 & IS 15058 all complete for the following:						
d	230 mm wide and 6 mm thick	RM	71.5				
607	Providing and fixing <b>copper water stops</b> in joints of deep underground structure all complete for the following:						
b	230 mm wide and 8 mm thick	RM	15				
<b>700 MS EMBEDMENTS</b>							
<b>Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	120				
702	Same as above with BHEL supplied raw material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	MT	13				
703	Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	20				
704	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	96				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
705	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.						
a	MS pipes of all diameters	Quintal	16				
b	PVC pipes / conduits of all diameters	Quintal	5				
d	Expansion fasteners (mechanical & galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work/M25 grade of concrete with expansion sleeve.						
i	Upto 250 kg	Each	10				
ii	Beyond 250 Kg and upto 500 kg	Each	10				
iii	Beyond 500 Kg and upto 750 kg	Each	10				
e	Chemically fixed anchor fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work of grade M25 or above.						
i	Upto 250 kg	Each	15				
ii	Beyond 250 Kg and upto 500 kg	Each	15				
iii	Beyond 500 Kg and upto 750 kg	Each	10				
<b>800 GROUTING</b>							
<b>Grouting including all labour, material, equipment, roughening surface, cleaning, ramming, curing etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer-in - charge.</b>							

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
801	Providing & grouting with <b>cement slurry mix</b> of approved ratio using <b>pressure pump</b> for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at minimum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	80.5				
<b>1800 MISCELLANEOUS WORKS</b>							
<b>Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.</b>							
1801	<b>Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm</b> in layers not exceeding 230 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	135				
1804	Supply and installation of approved <b>25mm thick vibration damping resilient pads</b> on/around foundation of vibrating equipment and at other locations all complete.	SQM	10				
1806	Providing 50mm thick <b>anti corrosive layer</b> laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	700				
1810	Laying and fixing <b>rails and guide rails in concrete</b> for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete. <b>(Only Rail will be provided by BHEL under free issue)</b>	MT	26				

**Signature of bidder**

ST. NO	DESCRIPTION OF ITEM	UOM	Qty per unit	RATE		AMOUNT	
				In fig	In words	In fig	In words
1812	Laying of <b>earthing mats/rods</b> including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	180				
1815	Providing and fixing <b>GI rungs</b> in concrete/brick walls having zinc coating of <b>minimum 900 g/sqm</b> etc. all complete.	Kg	75				
	<b>TOTAL :</b>						

**Signature of bidder**