

# **TENDER SPECIFICATION**

**BHEL: PSSR: SCT: 1468**

**FOR**

Civil for Boiler, ESP, Power House, TG, Mill Bay and other Main Plant buildings-Foundation, Super structure including Architectural work & other allied works and Structural steel fabrication & Erection for Power House, Mill Bunker Bay, Pipe & cable rack and allied works for unit 3 of 1 x 700 MW

**at**

Bellary Thermal Power Station, Kudatini,  
Bellary 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.

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(A Government of India Undertaking)  
Power Sector, Southern Region  
690, Anna Salai, Nandanam, Chennai – 35**

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One set of Tender documents consisting of Volume-I and Volume II

**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 BHEL's Customer specifications and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
- 2) The work shall be carried out as per construction drawings (which will be 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, from 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) Engineer's 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) In case 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.

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
<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	23,526				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	3,654				
103	Earth work in excavation in soft rock (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	58,346				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	32,816				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	7,198				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	800				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	100				
105	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	15,224				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	41,822				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	19,146				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	12,448				

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ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
e	Depth exceeding 8 m but not exceeding 10 m	CUM	9,500				
f	Depth exceeding 10 m but not exceeding 15 m	CUM	1,000				
106	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	750				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	3,500				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	3,000				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	750				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	750				
f	Depth exceeding 10 m but not exceeding 15 m	CUM	100				
107	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 using/with selected materials from compulsorily excavated soil 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-VIII)	CUM	28,300				
109	Extra over ST No. 101 and 103 to 107 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	202,260				
110	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 using/with approved borrowed soil (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% modified proctor density as per IS-2720 (Part-VIII)	CUM	105,740				
111	Supplying and filling sand 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	1,320				
<b>200 CONCRETE WORKS</b>							

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
	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.						
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	8,030				
203	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	425				
204	Concrete under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.						

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ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
b	M20 Grade	CUM	16,045				
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 in foundations/substructure, grade slab, paving, drains, under floors etc at any level 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 as per specification & drawing for the following.						
a	M25 Grade	CUM	46,160				
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 in superstructure 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 as per specification & drawing for the following.						
a	M25 Grade	CUM	10,515				
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks 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	1,000				

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ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) and top deck of TG foundation at all levels 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 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, embedments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.						
a	M30 grade (with 20mm nominal size graded stone aggregate)	CUM	2,500				
b	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	500				
c	M40 grade (with 20mm nominal size graded stone aggregate)	CUM	500				
209	Extra over St. No. 205 to 208 for controlling of temperature 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	2,500				
212	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.						
a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	250				

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ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.						
a	M 25 grade	CUM	435				
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 in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming 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.						
a	M 25 grade	CUM	20,000				
215	Dismantling concrete 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	10				
b	Reinforced cement concrete of all grades	CUM	15				
216	Chipping of concrete 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	150				
217	Extra over and above St No 216 for cutting of reinforcement, 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	150				
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	150				

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ST. NO	Description	UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
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221	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 in sloped surface of canal lining or channel cast in alternate panels with provision of expansion gap/construction joints at any level 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, compaction with special equipments, etc all complete as per specification & drawing for the following.						
b	M25 Grade	CUM	2,000				
<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 centering complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.</b>							
301	Fairface form work with good quality water proof ply wood of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	153,045				
302	Fairface form work with good quality water proof ply wood of required thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights.	SQM	47,400				
303	Fairface Formwork with good quality water proof ply wood of required thickness and smooth surface for TG 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	1,000				
304	Providing, fixing and removing formwork in block-outs/pockets 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.						
a	Upto 150 mm depth	Each	75				
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	75				
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	75				
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	75				
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	50				
305	Fairface plywood with filmface/laminated formwork above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights where ever specifically mentioned in the drawing.	SQM	250				

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ST. NO	UNIT	Quantity	RATE (INR)		AMOUNT (INR)		
			in Figures	in words	in Figures	in words	
a.305	Providing permanent steel shuttering for Mill Bunker tripper floor and roof at an altitude ranging from 62m to 74m from FFL for RCC slab casting by Collecting raw structural materials like 3.15/3.2mm thick M.S sheet, angles/channels, etc., from BHEL stores, transporting, cutting to required size, lifting, placing in position of support members and steel sheets by tack / stitch welding at site. Raw structural materials will be issued from BHEL stores at free of cost. Rate to include cost of all consumables, tools and tackles, fabrication and erection charges.	SQM	1,000				
b.305	Providing temporary steel pipe staging from ground level to an roof height of 22m for facilitating the erection of architectural domes. Rate to include cost of hire charges for steel tubes, erection and de staging .	SQM	230				
<b>400 REINFORCEMENT</b>							
a.401	Straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.Reinforcements of 8mm, 10mm & 12mm dia steel may be supplied in coil form and the item should include cost of decoiling with no extra cost.BHEL will supply Reinforcement steel as a free issue.	MT	15				
a.402	Straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT/HYSD steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. Reinforcements of 8mm, 10mm & 12mm dia steel may be supplied in coil form and the item should include cost of decoiling with no extra cost.BHEL will supply Reinforcement steel as a free issue.	MT	7,867				
a.405	Straightening, cutting, bending, placing in position at any level, binding in position of corrosion resistant steel -HYSD deformed bars of approved make with steel of grade Fe-500 confirming to IS:1786 norms including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	100				
a.406	Straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	10				
a.407	Straightening, cutting, bending, placing in position at any level, binding in position high yield strength steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	100				
<b>500 WATER PROOOFING WORKS</b>							
<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>							

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
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501	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	4,900				
502	Providing and laying in-situ light weight foam concrete insulation as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:5 (1 cement: 5 coarse sand) after the curing period of laid foam concrete and providing of expansion joint at intervals as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.125 Kcal/sqm-hr deg C. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following.						
a	Average 50 mm thickness	SQM	1,600				
503	Providing and applying bitumen felt water proofing for normal treatment having bonding materials consisting of blown type conforming to IS: 702 or residual bitumen conforming to IS: 73 or a mixture of the two with one layer of felt consisting of five courses and with a minimum overlap of 75 to 100 mm of felt including preparation of surfaces etc all complete. (For description of layers refer specification)						
a	With hessian base felt	SQM	1,000				
504	Providing and applying bitumen felt water proofing for heavy treatment having bonding materials consisting of blown type conforming to IS: 702 or residual bitumen conforming to IS: 73 or a mixture of the two with two layers of felt each consisting of seven courses and with a minimum overlap of 75 to 100 mm of felt including preparation of surfaces etc all complete for following base felts (For description of layers refer specification):						
a	With hessian base felt	SQM	1,000				
506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscric cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	5,900				
507	Providing and laying wearing course consisting of 25mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	5,900				

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ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
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508	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 250x250 mm / 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway and entire equipment area with fine joints including sealing of joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)	SQM	3,550				
509	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	147,430				
511	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	90,600				
512	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	75,525				
<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 bitumen impregnated fibre board conforming 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	300				
b	20 mm wide joints.	SQM	350				
c	25 mm wide joints	SQM	320				
d	50 mm wide joints	SQM	75				
602	Providing and applying polysulphide based sealant 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:						
a	12mm X 25mm	RM	300				
b	20mmX25mm	RM	100				
c	25mmX25mm	RM	100				
d	50mmX25mm	RM	50				
603	Supplying and filling in position hot applied bitumin sealing compound (Grade A) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.						
a	10mm X 40mm	RM	500				
b	12mm X 25mm	RM	150				
604	Supplying and filling in position hot applied bitumin sealing compound (Grade B) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.						
a	10mm X 40mm	RM	250				

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ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
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606	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following:						
b	230 mm wide and 8 mm thick	RM	250				
c	150 mm wide and 6 mm thick	RM	200				
<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	336				
702	Same as above with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	MT	190				
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	50				
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	100				
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	500				
b	PVC pipes / conduits of all diameters	Quintal	250				
d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:						
i	Upto 250 kg	Each	2,200				
ii	Beyond 250 Kg and upto 500 kg	Each	1,900				
iii	Beyond 500 Kg and upto 750 kg	Each	4,500				
<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>							

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips ) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	210				
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	160				
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	135				
<b>900 DOORS, WINDOWS, VENTILATORS, LOUVERS</b>							
<b>Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
903	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	335				
904	Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	1,140				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO	UNIT	Quantity	RATE (INR)		AMOUNT (INR)		
			in Figures	in words	in Figures	in words	
906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	2,640				
a.906	Providing and fixing anodized aluminium framing of automatic closing sliding glass doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughned sheet of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	15				
907	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	565				
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)						
a	openable type	SQM	4,385				
b	fixed type	SQM	1,110				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalllic protection etc.including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	15,120				
910	Providing and fixing of aluminium composite panel(ACP) of following thickness with PVDF or polyester coating for interior partition of approved shade ,color etc all complete as per specification.						
b	4mm	SQM	2,500				
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :						
a	Over head hydraulic door closures	Each	250				
b	Floor mounted Hydraulic door closers	Each	60				
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	1,200				
913	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).						
a	Hand Operated	SQM	1,410				
b	Mechanically Operated	SQM	1,800				
c	Electrically operated	SQM	1,410				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
914	Providing and fixing PVC doors(25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	550				
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.						
a	4 mm thick clear sheet glass	SQM	5,060				
c	5.5 mm thick clear float glass	SQM	1,000				
d	6 mm thick wired glass	SQM	1,200				
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	800				
f	4 mm thick ground glass	SQM	660				
h	6 mm thick clear toughened safety glass	SQM	1,165				
i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	500				
k	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick plain float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	SQM	230				
l	6 mm thick laminated glass	SQM	365				
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	480				
917	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	925				
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	1,200				
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	500				
920	Roof skylight structure for atrium with 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealent, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.	SQM	1,500				
<b>1000 BRICKWORK</b>							
<b>Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.</b>							

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.						
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	1,850				
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 painting.						
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	3,470				
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.						
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	4,650				
1004	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item). Using brick on edge.						
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	1,190				
1006	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	150				
1007	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)	CUM	225				
1008	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	550				
1009	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	35				
1010	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	650				
1011	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	375				
1012	Providing and filling brick bats in soak pits all complete.	CUM	60				
<b>1100 DAMP PROOF COURSE</b>							

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
	<b>Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>						
A.1101	Providing Damp Proof Course 50mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.	SQM	1,400				
<b>1200 CEMENT MORTAR PLASTER</b>							
	<b>Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>						
A.1201	Providing 18mm thick plaster in two layers inside the building/boundary wall in cement mortar 1:6 on walls, finished to a uneven side of the wall.	SQM	70,000				
B.1201	Providing 20mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	59,870				
A.1202	Providing 13mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.	SQM	28,120				
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	20,910				
1207	Forming groove of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	430				
1208	Providing drip coarse on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	800				
1209	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (chicken wire mesh to be paid separately)	SQM	1,000				
1210	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	3,500				
<b>1300 FINISHES TO CONCRETE / PLASTERED SURFACES</b>							
	<b>Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>						

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1302	Two or more coats of Exterior masonry paint (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and suitable pigment. The paint shall be applied on a coat of primer over dried, prepared plaster surface as manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent, alkali resistant and extremely durable with color fastness as per specification.	SQM	80,745				
1303	Providing and applying two or more coats of oil bound distemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	29,220				
1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	28,465				
A.1305	Providing and applying two or more coats of chlorinated rubber based paint as per IS:9862 over walls in DM plant and in walls above Dado in battery rooms shall also be provided.	SQM	1,500				
A.1306	Providing and applying two or more coats of water bound distemper on all plastered ceiling .	SQM	10,000				
A.1307	Providing and applying two or more coats of oil resistant paint as per IS:161 shall be provided for oil canal and oil equipment room.	SQM	1,500				
1306	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	780				
1307	Two or more coats of fire resistant transparent paint as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications.	SQM	450				
1310	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	15,000				
1312	Providing and applying 2 mm thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	15,000				
<b>1400 FLOORING AND SKIRTING</b>							
<b>Flooring and skirting at any level including base layer, labour, material, equipments, transportation, handling, curing, polishing etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>							


TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	8,758				
a.1401	Providing and laying Granolithic flooring (cement concrete flooring in M25 with non metallic hardener topping 12mm thick with a total thickness of 50mm.Including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	8,758				
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates ) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado complete as per specification.	SQM	1,200				
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping) of size 300X300X25 thick of approved shade as per IS 1237, including cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grindig and polishing complete with laying as per IS 1443 etc. all complete for following:						
a	Laid in floors	SQM	5,700				
b	Laid in skirting	SQM	720				
1404	Providing and laying interlocking M30 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.						
a	60mm	SQM	1,350				
b	75mm	SQM	540				
1405	Providing and laying 50 mm thick floor finish with 25mm thk Terrazo Tiles including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	1,045				
a.1405	Providing and laying 50 mm thick floor finish with 250X250X20mm thk Terrazo Tiles including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	418				
1406	Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	250				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1408	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	25				
1410	Marble stone Flooring laid in 50mm overall thickness with 18-20mm thick marble slabs (grade -1) with minium 30mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	150				
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	325				
1414	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	1,260				
1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following						
a	7mm thick tiles In flooring	SQM	2,024				
b	10mm thick tiles In flooring	SQM	400				
c	7mm thick tiles In skirting and dado upto specific height	SQM	600				
d	10mm thick tiles In skirting and dado upto specific height	SQM	100				
1418	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, complete as per specification laid in pattern of following sizes						
a	400X400 mm	SQM	500				
b	600X600 mm	SQM	250				
1419	Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	600				
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.						
a	300X300 mm	SQM	750				
b	600X600 mm	SQM	150				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1421	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 600x600mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar all complete.	SQM	300				
a.1421	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 300x300mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar all complete.	SQM	320				
1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick ( to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.						
a	20mm thick	SQM	480				
b	38mm thick	SQM	450				
a.1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick ( to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.						
a	25mm thick	SQM	300				
1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	150				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL,STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1425	Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over underbed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete.	SQM	570				
1426	Providing and laying marble skirting /dado (Aranga white or approved shade/color /design) equivalent of minimum 20mm thickness projecting 6mm from adjacent plaster all complete including underbed cement mortar 1:3, scaffolding etc. all complete.	SQM	70				
1427	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry including pigments, curing etc all complete for following thicknesses:						
a	5mm thick	SQM	250				
b	7mm thick	SQM	250				
1428	Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	481				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1429	Providing and fixing removable type flooring system consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	360				
1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.						
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	1,000				
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	100				
c	Brass strips 20 mm wide and minimum 4 mm thick.	RM	100				
1431	Providing and laying wooden panel flooring and skirting of PERGO or equivalent of approved color, shade all complete as per manufacturer specification.	SQM	800				
<b>1500 ROOFING / SIDE CLADDING</b>							
<b>Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
A.1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8 mm with minimum trough depth of 38 mm. silicon modified polyester painting shall be used for permanent coating over galvanised surface with minimum rate of galvanising of 180 gm of zinc per sq.m. Dry film thickness of colour coating shall be at least 20 micron.						
a	Span Upto 1800mm	SQM	5,000				
b	Span Exceeding 1800mm and upto 2500 mm	SQM	3,500				

 <b>TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW</b>							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
B.1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate for conveyor galleries /steam generator shall be of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The external face shall be permanently colour coating of PVF2 paint of minimum DFT of 20 micron and inner surface shall be coated with silicon modified polyester paint with DFT of 20 micron.The rate of Zinc consumption for galvanising shall be 275 gm/sq.m. zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking.						
a	Span Upto 1800mm	SQM	2,000				
b	Span Exceeding 1800mm and upto 2500 mm	SQM	1,500				
1502	Providing and fixing <b>shear connectors</b> of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	30				
a.1503	Designing, providing and fixing Insulated External sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm ( or high tensile steel sheet of 0.5mm minimum thickness) metal thickness and zinc-aluminium alloy coating not less than 150 gm/sqm on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	31,440				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL,STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
a.1505	Designing, providing and fixing Insulated Inner sheet of Permanent colour coated metal cladding with Galvanised M.S. sheets of 0.6mm thickness( or high tensile steel sheet of 0.5mm minimum thickness) and rate of Galvanisation not less than 150 gm/sqm total on both sides of both sheets including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed directly to side runners and Z spacers made of atleast 2mm thick galvanised steel sheet of grade 375 as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting.	SQM	31,440				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
b.1505	Designing, providing and fixing Non Insulated External sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm metal thickness( or high tensile steel sheet of 0.5mm minimum thickness) and zinc-aluminium alloy coating not less than 150 gm/sqm on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 10 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. These sheet shall be fixed directly to side runners.	SQM	35,000				
1506	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.	SQM	25,000				
a.1507	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool. This mat shall be backed with 0.05mm thick aluminium foil and 24 Gx255 mm wire mesh netting. They shall be fixed to ceiling or wall as the case may be with 100x50x6 slotted mild steel plate welded to M.S. plate inserts embedded at the soffit of the slab at 600 mm c/c and 14 G steel wire down through slots and fixed to wire netting.	SQM	6,440				
<b>1600 FALSE CEILING</b>							
<b>False ceiling including all labour, material, equipment, transportation, handling, suspension system etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
A1605	Providing, fixing and laying anodised natural colour matt finished aluminium false ceiling comprise of 84mm wide, 12.5 mm deep closed type panels of Jindal/Hindalco make with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool (density 48kg/cum insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	2,000				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
A1606	Providing and Fixing 12.5 mm thick Gypsum board plain/perforated false ceiling tiles(600x600mm) of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including one coat of primer and two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail.metal suspension system shall consist of 6 mm dia galvanised steel rods suspended from ceiling supporting aluminium grid of 38x25x1.5 mm and cross tie of 25x25x1.5 mm and aluminium angle of 25x25x1.5 mm. suspension system shall be as per manufacturer's specification supported over movment platform.The work to be complete as per specifications, drawings and direction of engineer. A.C. ducts etc. suitable M.S. channel (minimum ISMC 100) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.( Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	2,400				
<b>1700 RAIN WATER DOWN TAKE PIPES</b>							
<b>Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
1702	Providing and fixing galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	780				
1704	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	1,500				
1708	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.						
a	110 mm Dia	RM	1,240				
b	160 mm Dia	RM	1,560				
c	200 mm Dia	RM	2,000				
a.1708	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.						
a	150 mm Dia	RM	2,000				
<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	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm 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	2,350				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1802	Providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture in concrete as per detail specification of manufacturer etc. all complete.	Kg	150				
1804	Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	250				
1806	Providing 50mm thick anti corrosive layer 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	45				
1807	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	400				
1808	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	150				
1809	Providing Chemical injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved cement, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	50				
1810	Providing, laying and fixing rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	40				
1812	Laying of earthing mats/rods 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	15				
1813	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	250				
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	250				
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	200				
1816	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	5				
1817	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.						
a	Upto 75 mm dia	RM	200				
b	100 mm dia	RM	200				
c	150 mm dia	RM	200				


TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
d	200 mm dia	RM	200				
1818	Providing and laying dry stone pitching of 230 mm thickness for slope protection in cement mortar 1:6 including hammer dressing, raking of joints, pointing, preparing the bedding surface and voids filling with stone aggregate etc. all complete.	SQM	2,085				
1819	Design, supply, fabrication, erection of stoplog gates in CW Pumps with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc 750 gms/sqm., following by an application of etching primer and dipping in black bitumen as per B.S. 3416, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose) (SS component shall be measured separately for payment)	MT	110				
1821	Supplying, fabricating, erecting in position and testing / examining bolted and / or welded structural steel work for stationary screens made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc as 750 gms./sqm. followed by application of an etching primer and dipping in black bitumen as per BS 3416 etc all complete.	MT	120				
1822	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	150				
1823	Fire proofing of steel structures with VERMICULITE cementitious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, surface preparation, curing, staging, compatible paintings etc. all complete.	CUM	300				
1824	Supply & fixing expanded metal steel sheet conforming to IS:412. Size of mesh shall be 10mmX40mm with strands of 2.5mm width and 1mm thickness to the structural steel for facilitating fireproofing works.	SQM	620				
1825	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	500				
1826	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	500				
1827	Supply and laying fire clay refractory brick work with fire clay mortar conforming to IS: 6 & 195 including curing etc. all complete on tank pads & in building walls.	CUM	50				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
1828	Dismantling old existing reinforced/non-reinforced brickwork/blockwork/stone masonry work in mud/lime/ cement mortar at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto 1km all complete.	CUM	25				
1829	Dismantling old existing plain/re-inforced concrete work at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto 1km all complete.	CUM	25				
1830	Dismantling old existing structural steel work at any level including plates, bolts, cutting rivets, welding, dismembering and stacking the dismantled materials within a lead upto 1km etc all complete.	MT	25				
1831	Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust suppression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling).	TANK-HR	500				
1832	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	10				
1833	Supply & fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, nuts, washers, bitumen washers etc. complete including overlap 100mm .	SQM	235				
a.1833	Supplying and fixing in position of 1.5mm to 2.5mm thick of approved plain FRP sheets on the erected architectural domes at 21m high as per drgs and std specifications. Rate to include cost of material, transportation, tools and tackles, fasteners, lifting and fixing charge.	SQM	200				
<b>2000 FENCING AND GATES</b>							
<b>Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
A2001	Supplying and erecting in position 3.0 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating ) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing of height of 600 mm confirming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, accessories etc. all complete. (Structural post shall be separately under item 2007)	RM	2,800				
2008	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	10				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	25				
<b>2100 WATER SUPPLY</b>							
<b>Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	168				
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	139				
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:						
a	25mm nominal bore.	EACH	135				
b	50mm nominal bore.	EACH	50				
A2104	Providing and fixing galvanised MS pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:						
a	15 mm nominal bore.	RM	2,800				
b	20 mm nominal bore.	RM	2,200				
c	25 mm nominal bore.	RM	2,000				
2106	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	52				
2107	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	EACH	54				
2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) all complete.	EACH	42				
2109	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	EACH	42				
2110	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	10				
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	50				
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	50				
2113	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	EACH	50				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.						
a	1000 litres capacity	EACH	25				
b	2000 litres capacity	EACH	5				
c	5000 litres capacity	EACH	12				
2115	Providing and fixing approved stainless steel sink with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	25				
<b>2200 SANITARY WORKS</b>							
<b>Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
2201	Supply and fixing glazed vitreous china Wash Basin conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.						
a	White	EACH	48				
b	Colored	EACH	10				
2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	51				
2204	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete.						
a	Floor mounted	EACH	100				
b	Wall mounted	EACH	35				
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	90				
2206	Providing and fixing white flat back glazed vitreous china urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	120				
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.						
a	75mm dia pipes	RM	1,754				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
b	110mm dia pipes	RM	1,754				
c	160mm dia pipes	RM	1,725				
d	200mm dia pipes	RM	500				
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.						
a	200mm dia	RM	2,310				
b	300mm dia	RM	1,035				
c	450mm dia	RM	1,835				
b	600mm dia	RM	400				
e	900mm dia	RM	200				
2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.						
a	150mm dia	RM	50				
b	250mm dia	RM	50				
c	300mm dia	RM	100				
d	500mm dia	RM	20				
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	53				
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	53				
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:						
a	100x100mm P or S Type.	EACH	51				
b	150x100mm P or S Type.	EACH	25				
c	150x150mm P or S Type.	EACH	15				
2214	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:						
a	100x100mm P or S Type.	EACH	16				
b	150x100mm P or S Type.	EACH	16				
c	150x150mm P or S Type.	EACH	6				
2215	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	53				
2216	Providing and fixing heavy duty UPVC floor traps with C.P jalli all complete.	EACH	53				
2217	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	26				
2218	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	38				

 <b>TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW</b>							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
2219	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	108				
2220	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	10				
<b>2300 STRUCTURAL STEEL</b>							
<b>Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>							
a.2301	Fabrication and erection of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL.BHEL will supply Structural Steel as a free issue. However loading,transporting from BHEL stores,unloading at site are in agency's scope.	MT	17,570				
2302	Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2 ) and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.	MT	500				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
2304	Providing and applying two coats of synthetic enamel paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.	MT	17,570				
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	305				
2309	Extra over above ST NO. 2301/2307 for finishing the grating units with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	150				
2310	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	Quintal	15				
2311	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	Quintal	50				
2312	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions ( weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	30				
2313	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:						
a	In erected position	MT	75				
b	In fabrication yard	MT	75				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO	UNIT	Quantity	RATE (INR)		AMOUNT (INR)		
			in Figures	in words	in Figures	in words	
2314	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members(weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	50				
A.2316	Supply, fabrication and erection of minimum 5 mm thick stainless steel liner of grade AISI-304; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete.	MT	194				
2317	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.						
a	20 Tons	EACH	45				
b	25 Tons	EACH	45				
c	40 Tons	EACH	60				
d	50 Tons	EACH	10				
e	60 Tons	EACH	10				
2318	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	30				
a.2320	Supply, fabrication and fixing of MS pipe hand railing (1000 mm high) of 32 mm/40 mm dia (Medium Grade) galvanised using 750 gm/sq.m. including transportation, loading/unloading, painting etc. all complete..	MT	30				
b.2320	Supply, fabrication and fixing of handrailing with 20mm square MS bar balustrade with suitable MS flat and aluminium/ Teakwood including transportation, loading/unloading, painting etc. all complete..	MT	10				
c.2320	Supplying and fixing in position of hand rails of size 6" x 2" with teak wood of approved quality including cost of materials, transportation, planing and turning to the required design as per std specifications. Rate also to include cost of polishing with approved material to give glazing finish.	RM	100				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
2321	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	3,600				
2322	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	3,000				
2323	Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	2,400				
2324	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	1,000				
2325	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	600				
<b>2400 ROAD WORKS</b>							
<b>Providing Road Work including necessary material, labour, machinery, transportation etc as</b>							
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	40,055				
a.2402	Compaction of original ground after excavation with max. of Six passes with watering using Power roller of 8 - 10 tonnes capacity including filling in dispersion occurred during rolling.	CUM	8,680				
2403	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	5,775				
2406	Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	11,013				
2407	Providing & applying tack coat of low viscosity liquid bitumen of grade 80/100 conforming to IS 73, 217 or 454 as applicable @10 kg/ 10 sqm for untreated WBM surface including scraping, cleaning with compressed air etc all complete.	SQM	88,100				
2409	Providing, mixing & laying of bituminous macadam course of specified thickness using bitumen of grade 60/70 conforming to IS 73, aggregates and binder material including hot mixing, hot laying, rolling etc all complete for the following.						
2409.a	75mm compacted thickness	SQM	44,050				
2410	Providing, mixing & laying 20 mm compacted thick premix carpet in a single course composed of suitable small size aggregate premixed with bituminous binder using medium setting grade bitumen on a prepared base including mixing, applying, rolling etc all complete.	SQM	44,050				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3,1X700MW							
ST. NO		UNIT	Quantity	RATE (INR)		AMOUNT (INR)	
				in Figures	in words	in Figures	in words
2411	Providing and applying liquid seal coat comprising of an application of a layer of bituminous binder using medium setting grade bitumen at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling etc all complete.	SQM	44,050				
2412	Supplying and laying 400mmx150mmx350mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	12,400				
2413	Providing & laying edge protection on both edges of black topping using brick on edge (bricks with crushing strength of 75 kg/cm <sup>2</sup> ) with full brick width (230 mm) etc all complete.	RM	12,400				
2414A	Supply and laying 150mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	300				
2416	Providing 20mm compacted thick premix carpet on existing/damaged road surfaces in a single course composed of suitable small size aggregate premixed with a bituminous binder using medium setting grade bitumen on the existing base including tack coat, cleaning of existing surface, mixing, applying, rolling etc all complete.	SQM	7,500				
	<b>Providing and placing concrete work including cost of labour, materials and equipment for handling, transportation, batching, mixing, placing, vibrating, shuttering, formwork and curing (excluding cost of reinforcement), with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specification and as per direction of engineer in charge for the following.</b>						
2426	Providing & laying 75 mm thick precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	11,000				
2427	Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	11,000				
2428*	Providing. Laying spreading, and compacting specified graded crushed stone aggregate in sub base course including priming the material in Mechanical Mixer (Pugmill) carriage of mixed material, spreading in uniform layers with Motor grader on a prepared base and compacting with Vibratory roller to achieve desired density of 98% including loading, unloading, stacking, mixing, spreading etc., complete with all lead and lift. (Compacted thickness Close graded GSB using Grading - 1, Table 400-1 materials (MORT &H) to achieve minimum C.B.R value of 30%(Metal 1.28cum)	CUM	13,215				

TENDER SPECIFICATION BHEL PSSR SCT 1468 CIVIL, STRUCTURAL AND ARCHITECTURAL WORK AT BELLARY UNIT-3, 1X700MW							
ST. NO	UNIT	Quantity	RATE (INR)		AMOUNT (INR)		
			in Figures	in words	in Figures	in words	
2429*	Providing, laying, spreading and compacting graded stone aggregates as per table 400-11 to Wet Mix Macadam specifications MORT & H, including premixing the materials with water at OMC in Mechanical mix plant (pugmill), carriage of mixed material by tipper to site, laying in uniform layers using motor grader/paver in sub base/base course, on a well prepared surface & compacting with power & vibratory roller to achieve the desired density including lighting, gaurding, barricding, maintenance of diversion etc., including cost of all materials, machinery, labour, loading, unloading, stacking, spreading etc., complete, with all lead and lifts(Metal 1.32Cum)	CUM	7,929				
2430*	providing & applying primer coat as per MORT &H clause 502, 8, over prepared surface of granular bse using bituminous emulsion complying with IS 8887 including clearing of road surface and spraying primer at the rate of 0.60 Kg/Sqm by mechanical means, including cost of all materials, machinery, labour etc., complete with all lead and lifts.	SQM	44,050				
2431*	Providing & applying tack coat as per MORT & H clause 503.8 with bitumen emulsion complying IS 8887, using emulsion pressure distributor at the rate of 0.20Kf/Sqm on the prepared bituminous/granular surface cleaned with mechanical broom, including cost of all materials machinery, labour etc., complete with all and lifts.	SQM	44,050				
2432*	Providing and laying Dense Graded Bituminous Macadam with 100-120 TPH hot mix plant producing on average output of 75 tonnes per hour using crushed agreegates of specified grading pre-mixed with bituminous binder@4.25% by weight of total mix and 2% cement as filler by weight of aggregates, transporting the hot mix to work site, laying withpaver finisher with sensor control to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction s per MORT&H specification clause 507, including cost of all materials, machinery, labour, loading, unloadin, stacking etc., complee with all lead and lifts. With Crushed aggregates confoming to Grading_II 60/70 grade bitumen with 50-75mm compacted thickness.	SQM	44,050				
2433*	Providing layind, Semi Dense Bituminous Concrete with 100-120 TPH hot mix plant producing an avarage output of 75tonnes per hour using crushed aggregates of specified grading, pre-mixed with bituminous binder and cement as filler @ 2% by weight of aggregates, transporting the hot mix to worksite, laying with paver finisher with sensor control to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rolletrs to achieve the desired compaction as per MORT&H specification clause 508, including cost of all materials, machnery, labour, loadin, unloading, stacking etc., complete with all lead and lifts. with grading-II aggregate having bitumin @ 5.0% by weight of total mix.60/70 grade bitumen with 25-30mm compacted thickness.	SQM	44,050				
<b>TOTAL</b>							