

BOQ / SOQ FOR CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS COMPRISING OF FOUNDATIONS FOR GTG, HRSG, STACK, HRSG CHIMNEY, FANS, PIPES & CABLE RACKS & OTHER EQUIPMENT FOUNDATIONS, TRENCHES, TANKS, GTG HALL, CONTROL AND SWITCHGEAR ROOMS WITH AUXILIARY PLANT BUILDINGS, BALANCE OF PLANT (BOP) CIVIL WORKS LIKE FRP COOLING TOWER, CW PUMP HOUSE, FEED POOL, PAVING, ROADS, DRAINS, CULVERTS, SEWAGE SYSTEMS, ELECTRICAL EARTHING ETC. INCLUDING RCC BORED CAST IN SITU PILING. AT 1X72MW GTG BASED REVAMP PROJECT OF CPP AT KRIBHCO, HAZIRA, GUJARAT

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
100	EARTH WORK					
Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawings and as directed by engineer- in-charge for the following.						
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	12250			
b	Depth exceeding 2 m but not exceeding 4 m	CUM	3870			
102	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	200.00			
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	100			
b	Depth exceeding 2 m but not exceeding 4 m	CUM	100			

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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	50			
b	Depth exceeding 2 m but not exceeding 4 m	CUM	50			
106	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (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	50			
b	Depth exceeding 2 m but not exceeding 4 m	CUM	50			
107	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 150 mm thickness using/with selected materials approved by OWNER 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-VII)	CUM	1000			
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	500			

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108	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 150 mm thickness using/with selected materials directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.					
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	500			
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	250			
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	12750			
110	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 150 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% maximum dry density as per IS-2720 (Part-VII)	CUM	6020			
111	Supplying and filling clean graded sand from approved quarries 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	1860			
112	Supplying and filling CNS (Cohesive non swelling) soil upto the required depth under floors, around foundations, plinths etc. in layers of 250 mm ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	3660			
200	CONCRETE WORKS					
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 specifications, drawings and as per direction of engineer in charge for the following.						

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Note: 1) Cement for all concrete works shall be ordinary Portland Cement, 43 grade conforming to IS: 8112. The engineer in charge may permit the use of ordinary Portland cement (53 grade) or Portland puzzolana cement (fly ash/calclined based) confirming to is: 1489 or Portland slag cement conforming to is: 455 or sulphate resisting Portland cement conforming to IS: 12330 or high alumina cement conforming to is: 6452 without any extra cost. 2) The consumption of cement (per cum. of concrete) shall be as per recommended/approved concrete design mix subject to minimum requirement of IS 456/EIL Specifications/ Approved drawing (whichever is higher). However no extra claim shall be entertained on account of excess cement consumption as per the actual design mix to achieve required target strength & other parameters.						
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume from approved quarries confirming to IS: 383) as filling course at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	10			
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume from approved quarries confirming to IS: 383) as lean concrete , levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc. complete as per customer specification & drawing.	CUM	840			
203	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume from approved quarries confirming to IS: 383) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	5			
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.					
a	M15 Grade	CUM	10			
b	M20 Grade (OPC 43 Grade confirming to IS: 8112 with minimum Cement content of 350 kg/Cum)	CUM	570			
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.					
b	M30 Grade (OPC 43 Grade confirming to IS: 8112 with minimum Cement content of 420 kg/Cum)	CUM	3920			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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.					
b	M30 Grade (OPC 43 Grade confirming to IS: 8112 with minimum Cement content of 420 kg/Cum)	CUM	2600			
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of Grade - M-30 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	400			
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	400			
210	Extra over ST Nos. 205 to 207 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge. and as per specification.	CUM	400			
211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)					
c	M30 grade (OPC 43 Grade confirming to IS: 8112 with minimum Cement content of 420 kg/Cum)	CUM	70			
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.					

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a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	10			
b	1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume)	CUM	10			
c	1:3:6 (1 part cement, 3 part sand, 6 parts of aggregate by volume)	CUM	90			
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 for following grades.					
b	M 30 grade (OPC 43 Grade confirming to IS: 8112 with minimum Cement content of 420 kg/Cum)	CUM	190			
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.					
b	M 30 grade (OPC 43 Grade confirming to IS: 8112 with minimum Cement content of 420 kg/Cum)	CUM	250			
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	5			
b	Reinforced cement concrete of all grades	CUM	15			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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, instructions of engineer in charge but excluding cutting of reinforcement .	CUM	5			
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	20			
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			
220	Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm.	CUM	1			
300	FORM WORKS					
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 (if provided), specifications, drawings and as per direction of engineer in charge for the following.						
301	Providing and fixing 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	8580			
302	Providing and fixing fairface formwork 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	9555			
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.					
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	130			
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	475			

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d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	200			
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	50			
400	REINFORCEMENT					
402	Taking delivery from BHEL stores/ store yard, loading, transportation, unloading at site, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT 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.	MT	1375			
406	Taking delivery from BHEL stores/ store yard, loading, transportation, unloading at site, 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. (Reinforcement shall be provided by M/S BHEL Free of cost)	MT	3			
408	Supplying and fixing steel wire mesh (3mm thick wire, 50x50 size mesh) as reinforcement for encasing steel columns, pipes at all elevations as per drawings and specifications.	SQM	200			
500	WATER PROOFING WORKS					
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.						
501.a	Providing and laying under bed grading plaster with cement mortar 1:4 (1 cement : 4 sand) up to thickness of 25 mm including preparation of surface, batching, mixing, levelling etc. all complete as per drawings, specification and as directed by Engineer-in-charge.	SQM	350			
501.b	Providing and laying under bed grading plaster with screed concrete 1:2:4 for thickness greater than 25mm including preparation of surface, batching, mixing, levelling etc. all complete as per drawings, specification and as directed by Engineer-in-charge.	SQM	350			

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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	1200			
515	Supply and laying of waterproofing by brick bat coba including cleaning RCC slab with wire brush and water, filling of cracks by polymer modified cement or mortar using acrylic polymer, laying of 15mm thick cement sand mortar (1:4) admixed with water proofing compound, laying of brick bats soaked overnight in water with thickness of about 70 to 110mm, filling gaps between bricks with cement sand mortar (1:4) admixed with water proofing compound, curing with gunny bags and laying 20mm thick final layer of cement sand mortar, 1:4 , admixed with water proofing compound.	SQM	1100			
516	Supply and laying of 3mm thick polymer modified bituminous membrane water proofing.	SQM	700			
600	JOINTS AND FILLERS					
Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.						
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	25			
b	20 mm wide joints.	SQM	140			
c	25 mm wide joints	SQM	60			
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:					

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a	12mm X 25mm	RM	25			
b	20mmX25mm	RM	500			
c	25mmX25mm	RM	200			
603	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.					
a	10mm X 40mm	RM	25			
b	12mm X 25mm	RM	100			
c	20mmX25mm	RM	100			
605	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicon or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:					
a	25mmX25mm	RM	100			
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	280			
d	230 mm wide and 6 mm thick	RM	1900			
700	MS EMBEDMENTS					
Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.						
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	15			
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	5			

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703	Fixing of embedments , inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	20			
704	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	10.0			
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	5			
b	PVC pipes / conduits of all diameters	Quintal	5			
c	UPVC pipes / conduits of all diameters	Quintal	5			
d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide :					
i	Upto 250 kg	Each	25			
ii	Beyond 250 Kg and upto 500 kg	Each	50			
iii	Beyond 500 Kg and upto 750 kg	Each	50			
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:					
i	Upto 250 kg	Each	25			
ii	Beyond 250 Kg and upto 500 kg	Each	50			
iii	Beyond 500 Kg and upto 750 kg	Each	50			
800	GROUTING					

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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.						
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	3			
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 anti shrinkage grout like Shrinkkomp or equivalent from approved manufacturear. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	10.0			
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of machinery 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	6			
806	Providing & grouting of equipments all complete with epoxy mortar. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	3			
900	DOORS, WINDOWS, VENTILATORS, LOUVERS					
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.						
901	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned teakwood free from large or loose knots, cracks or other defects including sand paper smoothening, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place.	SQM	6			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
902	Providing and fixing teakwood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handels 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 fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete.	SQM	6			
905	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	10			
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	60			
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	45			

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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	8			
b	fixed type	SQM	3			
909	Providing and fixing anodised aluminium work of Jindal , Hindalco or other equivalent approved make for door frames, windows, ventillators, 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-mettalic 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	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	12			
b	Floor mounted Hydraulic door closers	Each	4			
912	Providing and fixing pressed steel frames for doors and windows, 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	120			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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).					
b	Mechanically Operated	SQM	60			
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	105			
d	6 mm thick wired glass	SQM	30			
f	4 mm thick ground glass	SQM	110			
h	6 mm thick clear toughened safety glass	SQM	150			
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	2			
918	Providing and fixing M.S. louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	80			
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 sealant, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per specification.	SQM	200			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
921	Providing and fixing Laminated wooden flush doors as per EIL drawing no:- 7-75-0011 with all fittings and fixtures,approved quality heavy duty hinges, anodised aluminium tower bolts , aldrops, door stoppers, vision panels etc. all complete as per EIL specifications.	SQM	20			
922	Providing the 12 mm size safety bars for windows	SQM	70			
923	Providing and fixing 2mm thk. approved quality rubber sealing strip around doors and windows for making them air tight including cost of rubber strip adhesive,clips etc. all complete as per specifications and drawings.	RM	500			
924	Supplying and erecting including assembling fitting and fixing Powder Coated Aluminium partition frames with matching doors etc., as per drawing no. 3-00008 with frames, shutters, double acting heavy duty floor springs, fittings, and fixtures, mortice lock, alluminium beading but excluding glazing etc. complete	SQM	100			
1000	BRICKWORK					
Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specifications, drawings and as directed by engineer - in - charge.						
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.					
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	590			
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.					
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	520			
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	2			
1012	Providing and filling brick bats in soak pits of size varying from 40 mm to 80 mm all complete.	CUM	5			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
1100	DAMP PROOF COURSE					
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.						
1101	Providing Damp Proof Course 40mm 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 all complete.	SQM	135			
1200	CEMENT MORTAR PLASTER					
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.						
1202	Providing 20mm thick sand face plaster in two layers outside the building/boundary wall in cement mortar 1:4 (1cement :4 sand) of thickness not less than 12mm shall be applied similar to one coat plaster work. Before the under coat hardens the surface shall be scored to provide key for the top coat. The top coat also cement mortar 1:3 shall be applied thickness not less than 8mm and brought to even surface with wooden float. The surface shall then tapped gently with wooden float lined with cork to retain a coarse surface texture.	SQM	2830			
1204	Providing 12mm thick plaster in cement mortar 1:4 on walls with fair finish all complete.	SQM	490			
1206	Providing 15mm thick plaster in cement mortar 1:4 on walls with rough finish all complete.	SQM	2580			
1207	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	3730			
1208	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	150			
1214	Providing 15mm thick plaster mixed with water proofing compound on inside surfaces of R.C.C gutter	SQM	100			
1215	Providing 15mm thick plaster mixed with water proofing compound on outer surfaces of the building.	SQM	50			
1216	Providing 20 x 10 mm grooven in plaster	RM	600			
1300	FINISHES TO CONCRETE / PLASTERED SURFACES					
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.						

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
1303	Providing and applying two or more coats of oil bound destemper 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	1000			
1305	Providing and applying of weather proof exterior 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	3055			
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	6230			
1316	Providing and applying two coats of Plastic emulsion paint confirming to IS : 5411 , of approved shade, over a of coat of suitable primer and base prepared with oil based putty as per manufacturer's recommendation , including cost of paint, surface preparation with 3 mm thick plaster of paris punning, scaffolding etc. all complete including scraping / removing of old paints, making the surface good with plaster of paris wherever required, all complete as per EIL specification .	SQM	6230			
1317	All Steel doors, windows & ventilators shall be finished with two coats of Epoxy paint over a coat of primer	SQM	70			
1400	FLOORING AND SKIRTING					
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.						
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring (Steel trowel) with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles 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):Providing and laying 125mm high skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete as follows					
a	Laid in floors	SQM	2020			
b	Laid in skirting	SQM	45			

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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.					
c	80mm	SQM	1200			
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	1100			
1407	Providing and laying polished Kota stone 14mm to 16mm thk in flooring . Under bed shall average 35mm 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. Providing and laying 125mm high skirting of approved shade, as per IS:3462 and laying as per IS:5318 all complete					
a	Laid in floors	SQM	150			
b	Laid in skirting	SQM	15			
1409	Providing polished Kota stone 14mm to 16mm thk in skirting projecting 6mm from adjacent plaster including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	15			
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. Providing and laying 125mm high skirting of approved shade, as per IS:3462 and laying as per IS:5318 all complete					
a	7mm thick tiles In flooring	SQM	225			
b	10mm thick tiles In flooring	SQM	40			
c	7mm thick tiles In skirting and dado upto specific height	SQM	10			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
d	10mm thick tiles In skirting and dado upto specific height	SQM	5			
1418	Providing and laying 10 mm thk non-skid fully Ceramic 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	60			
1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable.					
b	38mm thick	SQM	100			
1427	Providing and fixing glazed anti skid 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:Providing and laying 125mm high skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.					
d	7mm thick skirting	SQM	5			
1432	False flooring will be fire resisting floating floor made in galvanized steel frame 600 mm x 600 mm supported on adjustable jack arrangement, tiled by 35 mm thick fire resistant teakwood particle board finished on top with antistatic type Formica/Vinyl of matching colour with adjacent environment with 3 mm thick hard PVC liping along all four sides. 24 gauge GI sheet is to be provided on the other side of particle board.	SQM	500			
1500	ROOFING / SIDE CLADDING					
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.						

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
1504	Designing, providing and fixing External sheet of Permanent colour coated galvanised metal cladding with high strength tensile steel sheet 0.5mm bare metal thickness having minimum yield strength 350 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total 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	3450			
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, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.	SQM	600			
1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.	SQM	600			
1600	FALSE CEILING					
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.						

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
1607	Providing and fixing aluminum lineal false ceiling system "LUXALON" by Hunter Douglas comprising of 84 mm wide 16 mm deep panels roll formed out of 0.5mm aluminium alloy 5050 or 3005, chromatised and stove enamelled (coil coated) on both sides in approved shade and factory cut in lengths upto 5m to suite site dimensions, perforated panels for return air as per air conditioning requirements, including 32mm wide & 39mm deep panel carriers roll formed out of coated steel / 0.95mm thick aluminium alloy with cutouts to hold the panels in the module of 90/100mm , including suspending carries from roof by 4mm dia galvanised steel wire rod hangers with height adujstment springs of stainless steel, fixed to roof by "j" hooks & nylon inserts, including providing profiles gap closure strips etc., slit openings for fixing supply / return air grill, lighting fixtres, AC diffusers etc. all complete as per drawings and specifications.	SQM	600			
1700	RAIN WATER DOWN TAKE PIPES					
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.						
1703	Providing and fixing HCl down take pipes of 150mm dia with water tight lead joint etc. all complete.	RM	25			
1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	875			
1800	MISCELLANEOUS WORKS					
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.						
1803	Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment)	SQM	2400			
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	50			
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	265			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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	6			
1811	Providing and fixing weep holes in Drains consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening covered with 40 mm downgraded aggregates in 300 X 300 mm sq. and 300 mm deep size all complete.	EACH	50			
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	35			
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	60			
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	10			
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	200			
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	50			
b	100 mm dia	RM	50			
c	150 mm dia	RM	50			
d	200 mm dia	RM	50			
1823	Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, suface preparation, curing, staging, compatible paintings etc. all complete.	CUM	25			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
1826	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	265			
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 upto1km all complete.	CUM	5			
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	3			
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	1			
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 supression 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	150			
1834	Providing and Filling below foundations with random rubble stone in layers not exceeding 150 mm 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.	SQM	3360			
1835	Fire proofing of structural steel members with insitu concreting with M20 grade nominal mix concrete mixed and placed as per BHEL specification no. 4-28-0033.	SQM	200			
2000	FENCING AND GATES					
Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.						

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
2004	Supplying and erecting in position 2.4 m high gavanised chain linked fencing conforming to IS 2761 of 10G hot dip galvanised steel wires woven in the form of zigzag mesh giving an opening size of 50 mm square. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete.	RM	55			
2008 (a)	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	0.5			
(b)	Extra over Item No. 2008 for galvanisation of mild steel posts.	MT	0.5			
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 stiffners, 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	0.3			
2011	Design, fabricating and fixing of structural barricading using rolled section of not less than 75x75x8 or ISMC- 100 as a supporting member (vertical posts), Intermediate posts of ISA 50X50X6 between 2 vertical posts, stays of ISA 50X50X6 at every 3rd Span and G.I corrugated sheet of minimum 24 gauge.Height of barricading shall be minimum 5M from ground level.Necessary air gap shall be maintained at specific interval to suit at site conditions.Barricading should be designed to withstand the wind pressure on that location. Rate shall be inclusive of design,submission & approval by BHEL engineer. On completion of the job the barricading material shall be dismantelled and handed over to BHEL. (Refer Drawing : BHE/PW/OY-11)	RM	200			
2100	WATER SUPPLY					
Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.						
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	30			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	10			
2104	Providing and fixing GI 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	150			
b	20 mm nominal bore.	RM	20			
c	25 mm nominal bore.	RM	20			
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:					
a	15 mm nominal bore.	RM	40			
b	20 mm nominal bore.	RM	10			
c	25 mm nominal bore.	RM	10			
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	4			
2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) all complete.	EACH	6			
2109	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	EACH	6			
2110	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	6			
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	4			
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. all complete.	EACH	8			
2113	Providing and fixing chromium plated brass safety shower with 15 or 20 mm inlet all complete.	EACH	4			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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	2			
b	2000 litres capacity	EACH	1			
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	2			
2200	SANITARY WORKS					
Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.						
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	8			
2202	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	6			
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	4			
b	Wall mounted	EACH	4			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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	8			
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	10			
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.					
c	160mm dia pipes	RM	35			
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	5			
b	300mm dia	RM	5			
c	450mm dia	RM	5			
b	600mm dia	RM	5			
e	900mm dia	RM	5			
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	30			
b	250mm dia	RM	8			
2211	Providing and fixing C.I. Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	8			
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	6			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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:					
b	150x100mm P or S Type.	EACH	12			
2215	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	10			
2216	Providing and fixing heavy duty UPVC floor traps with C.P jalli all complete.	EACH	10			
2219	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	6			
2220	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	4			
2221	Providing and fixing SCI, S&S slotted cowl (Terminal guard) 100 mm diameter	EACH	1			
2300	STRUCTURAL STEEL					
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.						
2301	Taking delivery from BHEL stores/ store yard, loading, transportation, unloading at work place, 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..... contd ...					

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
2301	...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 drawings, in consultation with BHEL.					
a	Fabrication	MT	550			
b	Erection	MT	550			
2302	Extra over ST NO. 2301 for blast cleaning (shot blasting using copper slag, Aluminium Slag, Iron Slag as an abrasive material) of steel structures near to 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	550			
2303	Extra over ST NO. 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting etc. all complete.	MT	550			
2305	Providing and applying two coats of epoxy based colour finish 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	550			
2306	Providing, laying and clamping of crane rails over the crane girder at all elevations as per IS 3443 including all fixtures, clamps, testings etc. all complete as per drawing and specification.	MT	15			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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	50			
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	10			
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	11			
2311	Providing and fixing in position 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	4			
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	1			
b	In fabrication yard	MT	1			

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
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	1			
2320	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete.	MT	5			
2321	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	15			
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	80			
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	25			
2500	PILING WORKS					
2501	Mobilisation of two sets of hydraulic rotary piling rigs and accessories capable of pile boring/drilling in all types of strata/installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete.	LS	1			
2502	Mobilisation of two sets of conventional DMC/RMC piling rigs and accessories capable of pile boring/drilling in all types of strata/installing various size of bored cast in situ RCC piles to project site and demobilisation of the same after completion of piling works etc all complete.	LS	1			

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RATE SCHEDULE

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
2503	<p>Installation of Bored cast-in-situ RCC vertical pile as per IS 2911 (Part 1 Sec 2) with diameter and length as specified (length to be measured from pile cut-off level to the bottom of pile) using concrete grade M30 with 20 mm nominal size stone aggregates with a minimum cement content of 400Kg per cum of concrete(Cement shall be Sulphate resistance cement with minimum cement content 400 kg/Cum ,confirming to IS:12330) including providing all materials (but excluding reinforcement steel which shall be supplied by BHEL and cost of bending & fixing of reinforcement steel for which measurement/payment shall be made separately), boring/drilling in all types of soil, providing bentonite slurry and/or casing for stabilization of pile bore, flushing of pile bore, cleaning, providing plasticizer wherever required, breaking pile head to cut off level and exposing pile reinforcement for embedment in pile cap etc including empty boring from ground level to pile cutoff level etc all complete as per specification/ drawing and as directed by the engineer-in-charge for the following.</p> <p>Note: 1) No compensation shall be made towards additional qty. of cement beyond 400kg/Cum. for concrete mix design</p>					
b	Pile with 500 mm diameter and 20 m length below cut off level	Each	716			
2504	Extra over ST. No. 2503 for pile length more than the specified length of 20m below cut off level for the following.					
b	For 500 mm diameter pile	Rm	100			
2505	Rebate on ST.No.2503 for pile length less than the specified length of 20m below cut off level for the following.					
b	For 500 mm diameter pile	Rm	100			
2507	Conducting initial load test upto a maximum test load of 2.5 times the safe load capacity on single pile as specified in accordance with IS 2911 (Part-4) including preparation of pile head for testing, necessary excavation, all arrangements of loading, unloading, test equipments/accessories, jacks, recording of results, labour, submission of test report but excluding the cost of installation of pile (installation of pile shall be paid seperately) etc all complete as per specification, drawing and as directed by engineer in-charge for the following.					
a	For vertical compression test by cyclic load method					

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
ii	500 mm diameter pile	Each	1			
b	For lateral load test					
ii	500 mm diameter pile	Each	1			
c	For tension/uplift test					
ii	500 mm diameter pile	Each	1			
2508	Conducting routine load test on single job pile as specified in accordance with IS 2911 (Part-4) including preparation of pile head for testing, necessary excavation, providing all arrangements of loading, unloading, test equipments/accessories, jacks, recording of results, labour, submission of test report etc but excluding the cost of installation of job pile complete as per specification, drawing and as directed by the engineer-in-charge for the following.					
a	For vertical compression test by maintained load method					
ii	500 mm diameter pile	Each	11			
b	For lateral load test					
ii	500 mm diameter pile	Each	11			

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RATE SCHEDULE

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	RATE IN FIG	RATE IN WORDS	AMOUNT
2509	Carrying out pile integrity test on 500mm diameter pile including all arrangements for test, equipments/accessories, materials, labour, submission of test report etc but excluding the cost of installation of job pile all complete as per specification and as directed by the engineer-in-charge.	Each	3			
2510	Empty boring 500mm dia in ordinary soil.	RM	1440			
	TOTAL OF ALL ABOVE ITEMS IN RS					
	TOTAL OF ALL ABOVE ITEMS IN WORDS (RS)					