

**TENDER SPECIFICATION
BHEL: PSSR: SCT: 1603**

FOR

Civil, Structural and Architectural works

at

**370 MW YELAHANKA COMBINED CYCLE POWER PLANT,
YELAHANKA,
BENGALURU,
KARNATAKA STATE**

VOLUME –II

**PRICE BID
Revision-01**



BHARAT HEAVY ELECTRICALS LIMITED

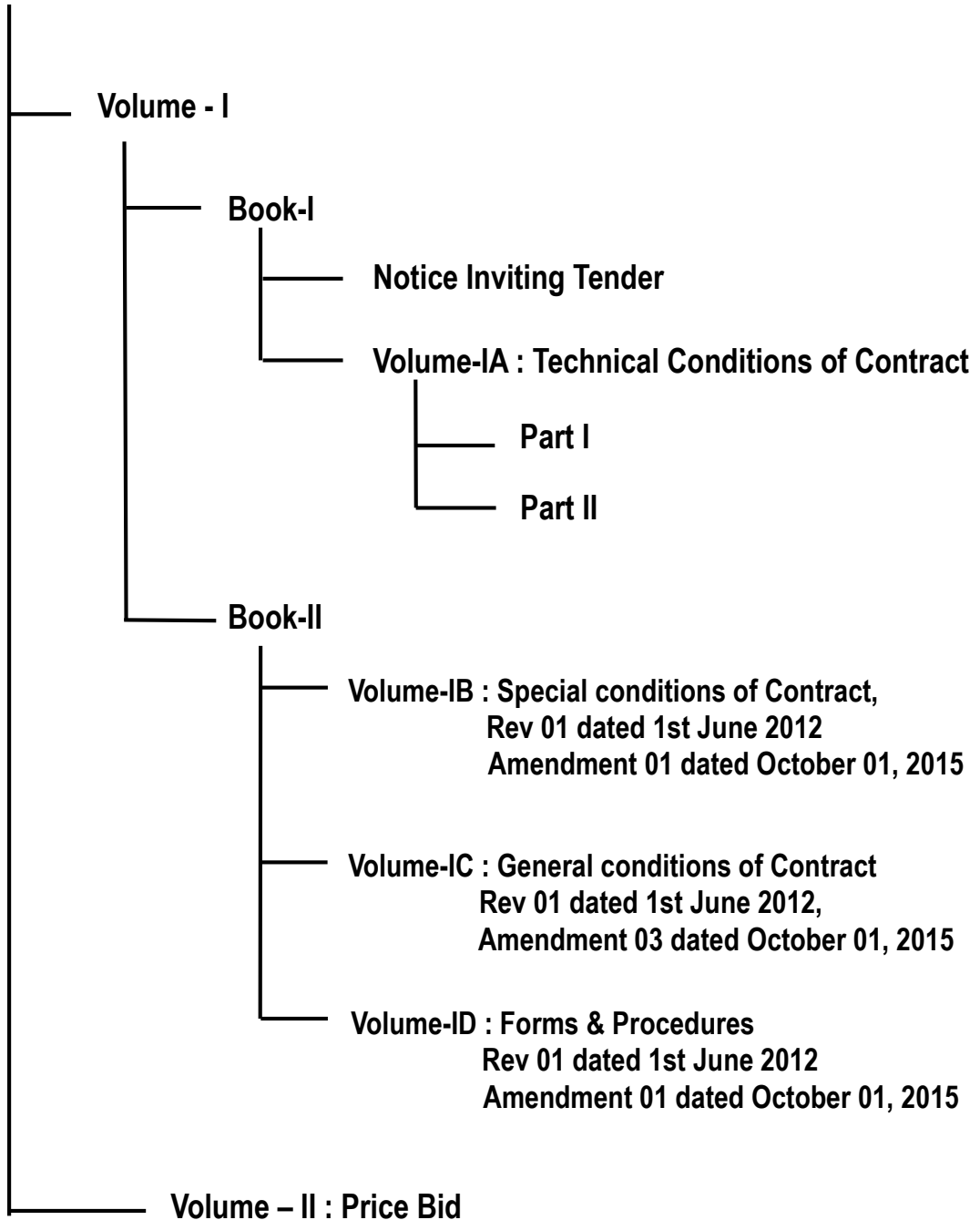
(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

TENDER SPECIFICATION CONSISTS OF

Tender Specification



PRICE BID

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

Tender Specification No. BHEL: PSSR: SCT: 1603

For

Civil, Structural and Architectural works at 370 MW Yelahanka Combined Cycle Power Plant, Yelahanka, Bengaluru, Karnataka State

One set of Tender documents consisting of

- 1) Technocommercial Bid - 2 copies
- 2) Price Bid - 2 copies

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Please note this tender document is not transferable.

For and on behalf of Bharat Heavy Electricals Limited

Additional General Manager / SCT

Place: Chennai -35

Date:

Tender Specification No.: BHEL PSSR SCT 1603

Tender Specification BHEL:PSSR:SCT:1603 REV01 for Civil at 1 X 370 MW Yelahanka CCPP

Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
100.0	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.						
101.0	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	62,398				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	39,792				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	12,888				
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1,425				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	1,313				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
103.0	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.						
d	Depth exceeding 6 m but not exceeding 8 m	CUM	2,446				
e	Depth exceeding 8 m but not exceeding 10 m	CUM	2,554				
f	Depth exceeding 10 m but not exceeding 15 m	CUM	2,841				
107.0	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	71,455				
108.0	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 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 97% maximum dry density as per IS-2720 (Part-VII)	CUM	15,783				
109.0	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	38,915				
111.0	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	3,083				
	200 CONCRETE WORKS						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(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.						
201.0	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as filling course at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	8,986				
202.0	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	1,586				
203.0	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	2,193				
204.0	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	255				
b	M20 Grade	CUM	3,263				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
205.0	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	8,937				
b	M30 Grade	CUM	11,732				
206.0	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	5,953				
b	M30 Grade	CUM	799				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
207.0	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	3,007				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
208.0	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, preperation 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, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.						
c	M40 grade (with 20mm nominal size graded stone aggregate)	CUM	625				

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				(In Fig)	(In Words)	(In Fig)	(In Words)
209.0	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	6,250				
210.0	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	2,481				
211.0	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. all complete as per specification for the following grades.						
a	M20 grade	CUM	84				
b	M25 grade	CUM	100				
212.0	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	471				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
b	1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume)	CUM	15				
A212	Screed concrete with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size below all water retaining structures of thickness 100 mm and of nominal mix 1:3:6 (1 part cement, 3 part sand, 6 parts of aggregate by volume) etc complete .	CUM	286				
213.0	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	357				
b	M 30 grade	CUM	71				

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				(In Fig)	(In Words)	(In Fig)	(In Words)
214.0	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 conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades.						
b	M 30 grade	CUM	15,215				
215.0	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	21				
b	Reinforced cement concrete of all grades	CUM	210				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
216.0	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 .	CUD M	7				
217.0	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.	SQC M	5				
218.0	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.	CUD M	1				
220.0	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	90				
	300 FORM WORKS						
	Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
301.0	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	59,249				
302.0	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	46,464				
303.0	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	683				
304.0	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	144				
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	244				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	168				
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	135				
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	59				
305.0	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	692				
	400 REINFORCEMENT						
401.0	Providing, 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.	MT	52				
402.0	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	5,058				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A402	Welding of lap joints of steel reinforcements of TMT bars as per IS:9417 including cost of welding electrodes, labour, tools and plants etc. complete as permitted and directed by Engineer. Measurement shall be done for the number of joints welded comprising of weld deposition of 2.5 d length each on both side of lap joint (i.e total 5d length of weld deposition). Here,						
a	For d=16 mm	Each	150				
b	For d=20 mm	Each	250				
c	For d=25 mm	Each	200				
d	For d=28 mm	Each	250				
e	For d=32 mm	Each	480				
f	For d=36 mm	Each	150				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
403.0	Straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR 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	80				
406.0	Providing, 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	1				
407.0	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	1				
	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.						
501.0	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	7,769				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
502.0	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	363				
506.0	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, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	350				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A506	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, application of polymerised mortar over sloped roof, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	8,387				
507.0	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 as per specification	SQM	1,303				
A507	Providing and laying wearing course consisting of 40 mm thick plain cement concrete of grade M20 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 as per specification.	SQM	6,467				

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				(In Fig)	(In Words)	(In Fig)	(In Words)
508.0	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	63				
A509	Providing and applying three 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	19,653				
511.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	700				
512.0	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	1,630				
A513	Providing and applying concrete structures(in contact with potable water) for two or more coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 200 to 500 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation.	SQM	100				
	600 JOINTS AND FILLERS						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
	Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.						
601.0	Supplying & installation of bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including Oiling, coating of both faces with coal tar pitch/bitumin etc. all complete.						
a	12 mm wide joints.	SQM	162				
c	25 mm wide joints	SQM	1,814				
602.0	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	363				
c	25mmX25mm	RM	1,348				
606.0	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following:						

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				(In Fig)	(In Words)	(In Fig)	(In Words)
b	230 mm wide and 8 mm thick	RM	2,305				
c	150 mm wide and 6 mm thick	RM	89				
d	230 mm wide and 6 mm thick	RM	4,300				
A606	Providing and fixing PVC ribbed water stops with central bulb/kicker type(externally placed) PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for 225 mm width and 6 mm thickness.	RM	315				
	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.						
701.0	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	50				

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				(In Fig)	(In Words)	(In Fig)	(In Words)
703.0	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	41				
704.0	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	34				
705.0	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	1				
b	PVC pipes / conduits of all diameters	Quintal	21				
c	UPVC pipes / conduits of all diameters	Quintal	69				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
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:						
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:						
ii	Beyond 250 Kg and upto 500 kg	Each	100				
iii	Beyond 500 Kg and upto 750 kg	Each	100				
	800 GROUTING						
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
801.0	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at minimum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	25				
802.0	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	38				
803.0	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	16				
804.0	Providing & grouting(Non shrink precision) 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	132				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
805.0	Providing & grouting (Non shrink precision) 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	47				
	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.						
901.0	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP 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. (Finish painting / polishing paid separately)	CUM	1				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A902	Providing and fixing teakwood frame "teak veneer faced ply wood" 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	84				
903.0	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 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 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.	SQM	159				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A903	Providing, fitting and fixing Pre-laminated particle board(medium density fibre exterior grade)shutters 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partial 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 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 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.	SQM	8				
904.0	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	10				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A904	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 centre to centres; side, top and bottom edges of the shutters, reinforced by continuous pressed steel channel with minimum 18 G including void filled with mineral wool for sound insulation (density as per specification), all Hardware and fittings, Godrej or equivalent make mortice lock with handle on both sides, tower bolt, stoppers, alldrops, door closer, shop and final painting etc all complete.(Door closer to be paid separately)	SQM	73				
905.0	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	5				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
906.0	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	20				
A906	Providing and fixing powder coated(minimum 60 micron thickness) extruded aluminium double leaf swing door fabricated from extruded sections of INDAL/HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and 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 light tinted sheet 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	1,114				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A907	Providing and fixing automatically closing fire steel proof door satisfying LPA regulations (single or double shutter) with panic devices shall be minimum 44mm 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 centres to centers including all fittings, vision glass, 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, LPA requirements and as per specification. Minimum ratings shall be 2 Hrs. All hardware fittings shall be fire rated. Payment terms - a) On receipt of materials at site - 65%; b) On completion of erection & fixing - 35%.	SQM	40				
908.0	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	129				
b	fixed type	SQM	110				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
909.0	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-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,	Kg	500				
A909	Providing and fixing powder coated (minimum thickness 60 micron)aluminium work of INDAL,Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections of minimum wall thickness 3 mm, including all fittings & fixtures, fixtures for sliding windows and accessories of approved make conforming to IS733 and IS1285, 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,	Kg	4,049				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
910.0	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	100				
c	5mm	SQM	50				
911.0	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	10				
b	Floor mounted Hydraulic door closers	Each	7				
912.0	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	330				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
913.0	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 of 75mm wide and 3mm thick(min.) and arrangements for inside and outside locking with push and pull operation including wire springs, single piece top/hood cover 0.9 mm thick(min.), 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	25				
b	Mechanically Operated	SQM	155				
c	Electrically operated	SQM	600				
915.0	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.						
c	5.5 mm thick clear float glass	SQM	303				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
d	6 mm thick wired glass	SQM	25				
e	6mm thick Polycarbote sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	100				
h	6 mm thick clear toughened safety glass	SQM	66				
Ad	6 mm thick light tinted wired glass	SQM	11				
Af	4 mm thick frosted glass with light tint	SQM	21				
Ai	Two nos. 6 mm thick clear toughened light tinted safety glassas per IS:2553 hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	4				
917.0	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	50				
918.0	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	10				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
920.0	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	130				
921.0	Supplying, installing and commissioning of self sliding mechanism for aluminum door (double shutter) & air curtain including photo operated sensors, fittings, motors, mechanical systems, electrical systems,warranty all inclusive in working condition as per specifications and drawings (aluminum and glazing to be paid seperately)	EAC H	2				
922.0	Providing and fixing anodized extruded aluminium windows (single or double shutter) including aluminium frame conforming to IS:1948, IS:1949 fabricated from extruded sections of approved make having minimum 1.5mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Glazing shall be wired glass of 6.0 mm thickness including snap fit type beading, concealed screws, fixtures, Approved make Mortice lock with handle on both sides etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required.	SQM	47				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
923.0	Providing and fixing anodized extruded aluminium ventilators conforming to IS:1948, IS:1949 fabricated from extruded sections of approved make having minimum 1.5mm wall thickness as per IS:1285, IS:733 and electro color coating of minimum 15 microns thickness. Glazing shall be clear float glass of 4.0 mm thickness including snap fit type beading, concealed screws, fixtures, etc complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required.	SQM	8				
	1000 BRICKWORK						
	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.						
1001.0	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.						
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	436				
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	50				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1002.0	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.						
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ²	CUM	10				
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	4,925				
1003.0	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	913				
1006.0	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	55				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1007.0	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.	CUM	50				
1009.0	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	24				
1010.0	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	20				
1011.0	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	50				
1012.0	Providing and filling brick bats in soak pits all complete.	CUM	105				
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1101	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	451				
	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.						
1201.0	Providing 18mm 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	1,200				
A1201	Providing external face of walls with 20mm thick cement plaster with an under layer of 14 mm thick in cement mortar 1:6 and top 6 mm thick layer in Cement mortar 1:4 with approved water proofing compound.finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	9,930				
1202.0	Providing 12mm 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	1,200				
B1202	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	20,104				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1203.0	Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete.	SQM	100				
A1203	Providing 18mm thick plaster in cement mortar 1:6 on walls with rough finish all complete.	SQM	4,224				
1204.0	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	3,387				
1205.0	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	1,287				
1206.0	Providing and making decorative plaster of all types and design on walls, ceilings, arcs, columns with various thickness upto 18 mm including finishing all complete.	SQM	215				
1207.0	Forming groove of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens Oiled 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	100				
1208.0	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	603				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1209.0	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 engineer in charge	SQM	50				
	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.						
1301.0	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	2,500				
1302.0	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	2,352				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1303.0	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	17,757				
A1303	Providing and applying two or more coats of water bound distemper of approved brand, shade and manufacture to give smooth and durable finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	9,700				
1304.0	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	5				
A1304	Two or more coats of acrylic washable distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	5				
1305.0	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	920				
1306.0	Providing and applying concrete structures(in contact with potable water) for two or more coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 200 to 500 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation.	SQM	162				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1306	Providing and applying 2 or more coats of chlorinated rubber based paint of approved brand and 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 as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	1,808				
1309.0	Two or more coats of synthetic enamel paint of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	252				
A1310	Providing and applying 2 or more coats of water proof cement based paint as per IS 5410 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	9,837				
1312.0	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	2,896				
1316.0	Providing and applying minium two or more coats of Plastic Emulsion paint as per IS 5411 of approved brand, shade and manufacturer to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturer guideline.	SQM	302				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1315	Providing and applying two or more coats of External Grade Acrylic Emulsion Paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	5				
	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.						
1401.0	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	2,114				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1401	Providing and laying 50mm granolithic flooring with non metallic hardner pigmented topping 12mm thick uniform, 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 non metallic of concrete mix 1:2 (1 cement hardner mix with approved quality non 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	10,195				
1403.0	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	678				
b	Laid in skirting	SQM	77				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1406.0	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	24				
1408.0	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	4				
1412.0	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	120				
1414.0	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	12				
1416.0	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						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
a	7mm thick tiles In flooring	SQM	50				
b	10mm thick tiles In flooring	SQM	510				
c	7mm thick tiles In skirting and dado upto specific height	SQM	50				
d	10mm thick tiles In skirting and dado upto specific height	SQM	51				
1417.0	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.						
b	10mm thick tiles In flooring	SQM	1,540				
d	10mm thick tiles In skirting and dado upto specific height	SQM	154				
1418.0	Providing and laying 10 mm thk non-skid fully vitrified tiles of make						
b	600X600 mm	SQM	3				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1419	Providing and laying polished granite stone slab of 12mm thickness single piece on concrete platform, for wash basin / sink slab /facia /pantry of black granite or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	15				
1420.0	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	1,092				
b	600X600 mm	SQM	86				
1422.0	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	756				
b	38mm thick	SQM	44				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1423.0	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.						
a	20mm thick	SQM	100				
A1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles 25 mm thick confirming to IS:4457 in flooring/Dado beded ,jointed and pointed with potassium silicate mortar confirming to IS:4832(Part-I) with total thickness of the flooring made 50 mm, all complete.	SQM	34				
A1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (115mm thick) conforming to IS:4860 in the wall 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, with suitable pillasters at 2000 mm c/c, 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 & 20mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	20				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
B1424	Providing & fixing Acid / Alkali resistant (Chemical resistant) bricks of 38 mm thickness confirming to IS:4860 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The bricks shall be applied with 6mm thick Potassium Silicate bedding mortar and including preparation of surface, application of bitumen primer, curing etc. all complete .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.	SQM	22				
1427.0	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	10				
A1429	Providing and fixing removable type flooring system consisting of fire resistant phenol formaldehyde bonded particle board panels of size 600X600X35 mm mounted on steel pedestals (maximun height will be 1000mm) of adjustable height and supporting steel grid system with 2 mm thick flexible anti static PVC topping and PVC strip edging on sides of each panel including proprietary floor supporting system complete as per specification.	SQM	550				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1501	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 0.8mm 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 sheet shall be permanently coated with silicon modified polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ minimum 180 gm/sqm including fixing of sheet to purlin with self drilling white 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	6,750				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1502.0	Providing and fixing self drilling shear connectors 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	9				
1503.0	Designing, providing and fixing External sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 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	410				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1504	Designing, providing and fixing Trough type Zinc-aluminium alloy coated(both sides) MS high tensile sheet(Galvalume sheets) having 0.5mm total coated thickness with minimum yield strength of 550 MPa shall be used on external face (outer face) of cladding system. Weight of zinc-aluminium alloy coating not less than 150 gm/sqm 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 5 micron thick suitable primer. Inner face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) pre-coating of minimum DFT 12 microns over suitable primer of thickness 5 micron. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability.	SQM	9,120				
A1505	Designing, providing and fixing Inner sheet (specs same as per item no. A1504) directly to side runners and Z spacers made out of atleast 2 mm thick galvanised steel sheet of grade 375 as per IS: 277 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 sheet shall be fixed at the rate not more than 750 mm center to center to hold the insulation and external sheeting. All flashings, trim closures, caps etc required for cladding system to be made out of plain sheets having same material and coating specification for the outer face of the sandwiched metal cladding.	SQM	6,450				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1506.0	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	6,450				
1508.0	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	100				
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1602.0	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density 48kg/cum) 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 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc. The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.	SQM	188				
1603.0	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (density 48 kg/cum) conforming to 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 all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	1,260				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A1606	Providing and Fixing 12.5 mm thick Gypsum board plain/perforated false ceiling tiles(600x600mm) in plan or elevation with aluminium grid of 38x25x1.5 mm, 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, 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. Under deck insulation of 50mm thick mineral wool (density 48kg/cum insulation (as per IS:8183) mat backed with .05 mm thick aluminium foil and 24Gx 25 mm wire mesh netting fixed to ceiling or wall with 100x50x6 slotted mild steel plate welded to MS plate inserts embedded at the soffit of the slab at 600 mm center to center and 14 G steel wire drawn through slots and fixed to wire netting. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. 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(minimum MC100)/ Beams / Angles /MS plates/MS embeddment shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	931				
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1704.0	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	611				
1705.0	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	538				
1706.0	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	200				
A1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 suitably concealed with masonry work, cement concrete or sheeting to match with the exterior finish,all complete.	RM	1,648				
1708.0	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.						
b	160 mm Dia	RM	10				
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1801.0	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	7,686				
1805.0	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete.	SQM	426				
1806.0	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	136				
1809.0	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	200				
1810.0	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	17				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1811.0	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.	EAC H	136				
1812.0	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	54				
1813.0	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.	EAC H	14				
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	100				
1816.0	Providing and fixing injection molded PVC (as per IS4985) pressure release valve of minimum dia 100mm in water retaining structure including 160 mm dia PVC housing pipe of minimum length 3.75 m as per IS 4558 and joined as per IS 14182 with perforated end cap, solid floating ball, silt protector, PVC tail piece, Neoprene rubber, staggered perforations, SS screws, nylon jali, perforated end plug, PVC anchor collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EAC H	1,000				
1817.0	Providing and fixing HDPE pipes in concrete/brick work of following sizes including cutting, fixing and levelling in position etc. all complete.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
a	Upto 75 mm dia	RM	10				
b	100 mm dia	RM	10				
c	150 mm dia	RM	60				
d	200 mm dia	RM	60				
1819.0	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	28				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1820.0	SS component mentioned under ST No. 1819	MT	1				
1821.0	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	26				
1822.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	10				
1825.0	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	1				
1826.0	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	396				
1828.0	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	5				
1829.0	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	1				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
1830.0	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	2				
1832.0	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	40				
1834.0	Providing treatment of surface with antiweed chemicals in auxiliary transformer yard	SQM	158				
1836.0	Providing and fixing sliding layer of bitumen paper or Craft/LDPE paper over the screed layer of water retaining structures to destroy the bond between the screed and the base slab concrete of the water retaining structure etc all complete.	SQM	2,500				
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2001.0	Supplying and erecting in position 2.4 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	25				
B2001	Supplying and erecting in position 2.4 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. 3 lines of 12-gauge high tensile spring steel wire shall be provided for the entire length of fencing. 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, 50 mm x 6 mm galvanised MS flats shall be provided at every fifth post sandwiching the fencing with post using GI nuts and bolts,accessories etc. all complete. (Structural post shall be separately under item 2007)	RM	857				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2007.0	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.	MT	2				
2008.0	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	2				
A2009	Supply, fabrication and installing in position and testing galvanised MS Gates /wicket 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	8				
	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.						
2101.0	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.	EAC H	58				
2102.0	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EAC H	53				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2103.0	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.	EAC H	49				
b	50mm nominal bore.	EAC H	7				
2104.0	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	270				
b	20 mm nominal bore.	RM	196				
c	25 mm nominal bore.	RM	204				
2105.0	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:						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
a	15 mm nominal bore.	RM	112				
b	20 mm nominal bore.	RM	340				
c	25 mm nominal bore.	RM	292				
d	50 mm nominal bore.	RM	201				
2106.0	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.	EAC H	20				
A2106	Providing and fixing wall to wall bathroom mirror (5.5 mm thick float glass)with bevelled edges from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EAC H	15				
2107.0	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	EAC H	19				
2108.0	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) all complete.	EAC H	16				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2109.0	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	EAC H	16				
2110.0	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EAC H	28				
2111.0	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.	EAC H	37				
2112.0	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EAC H	14				
2113.0	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	EAC H	15				
2114.0	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.						
b	2000 litres capacity	EAC H	5				
A2114	Providing & fixing in position P.V.C. water tank conforming to IS 12701 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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
a	1000 litres capacity	EAC H	5				
b	2000 litres capacity	EAC H	5				
c	5000 litres capacity	EAC H	5				
2115.0	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.	EAC H	5				
	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2201.0	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	EAC H	10				
b	Colored	EAC H	5				
2202.0	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.	EAC H	25				
A2203	Providing and fixing stainless steel kitchen sink of size 750 mm conforming to IS: 13983 including all fittings etc. all complete.	EAC H	10				
2204.0	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
a	Floor mounted	EAC H	9				
b	Wall mounted	EAC H	2				
A2204	Providing and fixing 390 mm high 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, toilet paper roll holder, necessary C.P connections etc all complete.(Toilet paper roll holder paid separately).						
a	Floor mounted	EAC H	5				
b	Wall mounted	EAC H	2				
2206.0	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.	EAC H	29				
2207.0	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.						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
c	160mm dia pipes	RM	120				
d	200mm dia pipes	RM	395				
2208.0	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	130				
b	300mm dia	RM	80				
c	450mm dia	RM	280				
d	600mm dia	RM	60				
2209.0	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	60				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
b	250mm dia	RM	72				
c	300mm dia	RM	435				
d	500mm dia	RM	25				
2210.0	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:						
a	450mm dia	RM	25				
b	600mm dia	RM	15				
c	900mm dia	RM	10				
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EAC H	10				
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EAC H	11				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2213.0	Providing and fixing square mouth S.W Gully trap grade						
a	100x100mm P or S Type.	EAC H	12				
b	150x100mm P or S Type.	EAC H	15				
c	150x150mm P or S Type.	EAC H	18				
2214.0	Providing and fixing square mouth S.W Gully trap grade						
a	100x100mm P or S Type.	EAC H	21				
b	150x100mm P or S Type.	EAC H	21				
c	150x150mm P or S Type.	EAC H	29				
2215.0	Providing and fixing C.I. floor traps with C.P jalli all complete.	EAC H	17				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2216.0	Providing and fixing heavy duty UPVC floor traps with C.P jalli all complete.	EAC H	15				
2217.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EAC H	2				
2218.0	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EAC H	3				
2219.0	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EAC H	27				
2221.0	Supply, laying and jointing HDPE pipes 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.	EAC H					
b	110mm dia pipes	RM	263				
c	160mm dia pipes	RM	184				
d	200mm dia pipes	RM	6				
e	250 mm dia pipes	RM	4				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
	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.						
2301.0	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	MT	5,480				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
	(weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 200 C for welding over 20 mm and upto 40 mm & 660 C for welding over 40 mm and upto 63 mm & 1100 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 separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL.						
2302.0	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	7				
A2302	Extra over ST NO. 2301 for cleaning of steel structures to grade SA-2 as per IS 1477(Part-I) including touch-up painting etc all complete.	MT	5,480				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
B2302	Extra over ST NO. 2301 for applying intermediate coat of HB MIO Epoxy paint of minimum 75 micron total DFT over primer coat , including touch-up painting etc all complete.	MT	7				
2303.0	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	10				
2304.0	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	5,473				
A2305	Extra over ST No. 2301 for Providing and applying two coats(over primer/intermediate coat) of Aromatic Polyurethane Acid resistant 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 200 microns including protection and cleaning, scaffolding etc. all complete.	MT	7				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2307.0	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	17				
2308.0	Supplying, fabrication, erection and alignment of factory made galvanised welded grating units with mild steel 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 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	55				
2309.0	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	2				
2310.0	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C	Quintal	2				
A2310	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C	Quintal	2				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2311.0	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C	Quintal	9				
2312.0	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	1				
2313.0	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	6				
b	In fabrication yard	MT	6				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2314.0	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	11				
2319.0	Supply, fabrication and fixing of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	7				
A2320	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) as per IS:1161 galvanised using 750 gms/sq.m of zinc including transportation, loading/unloading etc. all complete.	MT	14				
2321.0	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	50				
2322.0	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	50				
2323.0	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	100				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2324.0	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	50				
2325.0	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	20				
2327.0	Supplying, fabrication, erection and alignment of factory made CI grill units for catch pit including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	1				
2400.0	ROAD WORKS						
A2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ soft 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	12,250				
2405.0	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size, stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	2,750				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2412.0	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	4,800				
2414.0	Supply and laying 150mm dia R.C.C NP-2 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	700				
2418.0	Providing and laying cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	3,800				
2419.0	Providing & laying dry lean cement concrete of grade M15 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete.	CUM	2,100				
	REINFORCEMENT						
2420.0	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.	MT	90				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2421.0	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 all complete as per specification, drawing and as directed by Engineer.	MT	105				
	MISCELLANEOUS						
A2423	Providing & installation of 25 mm thick bitumen impregnated fibre board confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	SQM	110				
A2424	Providing and applying of size 25 X25mm two part 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:	RM	270				
2426.0	Providing & laying 75 mm thick precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	6,400				
2427.0	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	6,400				
2600.0	LEVELLING & GRADING						

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2601.0	Cutting of trees having girth more than 300 mm measured at a height of 1m above ground level including removal of roots, stacking the serviceable material like trunks, branches etc at specified area within the plant boundary and disposal of unserviceable parts/materials within a lead upto 1km etc all complete.	EACH	1,250				
2602.0	Earth work in stripping of top soil upto a maximum depth of 0.30m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	Sq.m	33,190				
2603.0	Earth work in excavation upto any depth below ground level in all types of soil including moorum, ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	122,625				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
A2608	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm loose thickness with selected approved soil directly from excavation within a lead upto 1km and compacted as specified including dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.						
a	Each layer compacted so as to achieve at least 97% maximum dry density as per IS-2720 (Part-VIII)	CUM	36,275				
A2609	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm loose thickness with selected approved soil from compulsorily excavated soil available within a lead upto 1km and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.						
a	Each layer compacted so as to achieve at least 97% maximum dry density as per IS-2720 (Part-VIII)	CUM	36,275				
2610.0	Extra over ST No. 2603, 2608 & 2609 for carriage of unserviceable material/earth for every 1 km or part thereof beyond an initial lead of 1km.	CUM	50,075				

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Ref.No.	Description	Unit	Qty.	Rate		Amount	
				(In Fig)	(In Words)	(In Fig)	(In Words)
2612.0	Providing and laying 225mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	3,712				
TOTAL AMOUNT (In Figure)							
TOTAL AMOUNT (In Words)							