

**TENDER SPECIFICATION
BHEL PSSR SCT 1823**

FOR

CIVIL AND ARCHITECTURAL WORKS OF THE NON-PLANT
STRUCTURES / BUILDINGS

AT

2 X 660 MW

**UDANGUDI SUPERCRITICAL THERMAL POWER STATION,
STAGE - I, KALLAMOLI VILLAGE, THIRUCHENDUR TALUK,
TUTICORIN DISTRICT, TAMILNADU**

(for BHEL internal ref: Non plant civil Part 2)

PRICE BID

VOLUME –II



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035

PRICE BID

BHARAT HEAVY ELECTRICALS LIMITED

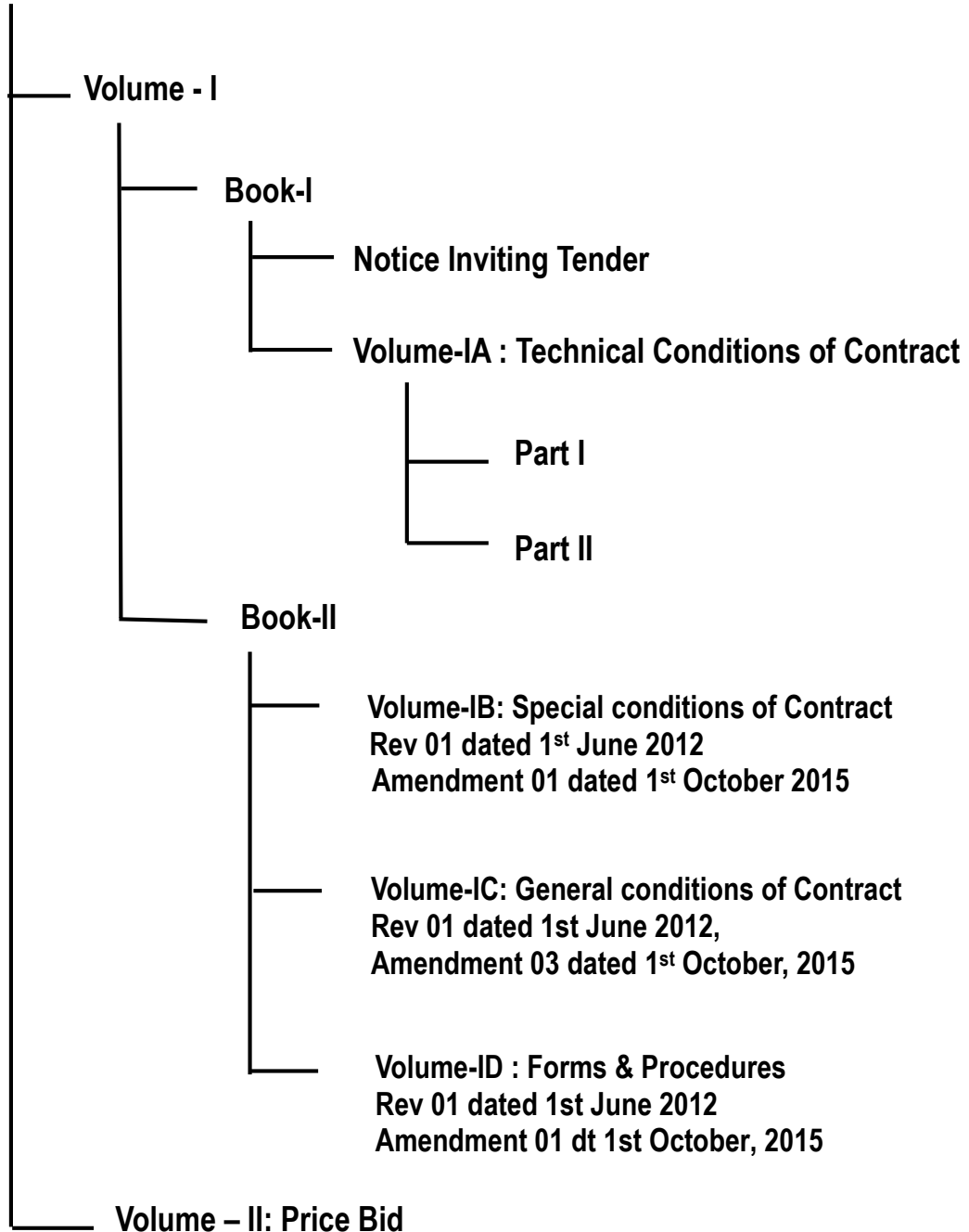
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TENDER SPECIFICATION CONSISTS OF

Tender Specification



PRICE BID

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PRICE BID

PART A

Instruction to Bidders:

1. The quantity indicated in the BOQ / Price bid Part-C is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. Bidders shall quote 'Total Amount' in the format for Price Bid available in the E-procurement portal.

Bidders may also quote 'Total Amount' in the format given in Part -B of this document (Optional).

Any other entry elsewhere in the price bid shall be treated as Null and Void.
3. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid.
4. The quantities given in the price bid are tentative and may change to any extent (both in plus side and minus side). The derived item rates (as mentioned above) for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limit of Minus (-) 30% of awarded contract value.
5. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
6. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
7. Based on the quantities of individual item and the amount arrived in Sl. No: 6 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
8. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per Sl No.7 above.

Part B: Format to quote Total Amount

**Tender Specification BHEL:PSSR:SCT:1823 for Civil Works - Foundations, Civil works-Super structure& architecture works, NON-PLANT PACKAGE - PART 2
at Udangudi Thermal Power Station**

Total Amount for the entire Bill of Quantities(BOQ) given in Part C

In Figures

In words

Note :

Bidders to quote Total Amount in this format given above, which shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.

Date

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
100.0	EARTH WORK: Earth work In excavation, backfilling and disposal including all labour, equipments etc complete 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 500m, spreading/levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	72,000	.0115976
b	Depth exceeding 2 m but not exceeding 4 m	CUM	42,000	.0084959
c	Depth exceeding 4 m but not exceeding 6 m	CUM	16,000	.0040457
102.0	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	46,000	.0049015
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.	--		
c	Depth exceeding 4 m but not exceeding 6 m	CUM	10,700	.003694
d	Depth exceeding 6 m but not exceeding 8 m	CUM	6,400	.0026513

Part C : Bill of Quantities

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
e	Depth exceeding 8 m but not exceeding 10 m	CUM	2,700	.0012863
107.0	Earthwork in 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 earth 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.	--		
Aa	Each layer compacted so as to achieve at least 98% maximum dry density as per IS-2720 (Part-VII)	CUM	92,000	.0144745
108.0	Earthwork in 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 within a lead upto 500m and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.	--		
Aa	Each layer compacted so as to achieve at least 98% maximum dry density as per IS-2720 (Part-VII)	CUM	10,200	.0006878
109.0	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 500m.	--		
a	Carriage for stacking/ backfilling of serviceable material/ earth (TO BE STACKED & USED FOR GRADING & LEVELING OF THIS PKG FROM NGL TO FGL)	CUM	52,400	.0007852
b	Carriage for disposal of serviceable/unserviceable material/ earth (TO BE STACKED & USED FOR GRADING & LEVELING OF GREEN BELT AREA FROM NGL TO FGL)	CUM	28,000	.0004196

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve compaction at least 95% maximum dry density as per IS-2720 (Part-VIII) with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:	CUM	200,700	.1402149
B110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve compaction at least 98% maximum dry density as per IS-2720 (Part-VII) with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:	CUM	66,900	.0467383
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	1,117	.0031424
112.0	Earth work in stripping of top soil upto a minimum depth of 0.20 m 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	140,000	.0049822

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
200.0	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. Cement Shall be supplied by BHEL as a free issue.	--		
201.0	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc.	CUM	1,060	.0049555
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	61	.0002852
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	3,700	.0172975
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.	--		
b	M20 Grade	CUM	350	.0016009
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 all 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	M 25 Grade	CUM	8,500	.0443227

Part C : Bill of Quantities

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	M 30 Grade	CUM	18,900	.099367
206.0	Providing and laying Design Mix cement concrete of grade 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 all 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.	--		
b	M 30 Grade	CUM	3,126	.0163472
A207	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below 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 but including TG foundation Columns with 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	--		
a	M 30 Grade	CUM	450	
b	M 35 Grade	CUM	450	.0025286
210.0	Extra over ST Nos. 205 to 208 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	200	.0001319
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. complete as per specification for the following grades. (cost to include welded wire mesh, chicken wire mesh also).	--		
a	M 20	CUM	1,750	.0081813

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A211	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	M 20	CUM	10	.0000468
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 all level or thickness, drains etc complete as per following.	--		
a	1:2:4	CUM	156	.0007293
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	M25	CUM	390	.0035084
b	M30	CUM	360	.0032534

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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. Watertightness is to be ensured including structural grouting if required.	--		
b	M30	CUM	3,300	.0244949
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	2	.0000027
b	Reinforced cement concrete of all grades	CUM	2	.0000038
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 .	CUDM	1	.0000001
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.	SQCM	1	
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.	CUDM	1	.0000003

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	300	.0013862
222.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	25	.0000038
223.0	Cutting of existing concrete/ RCC slab (total thickness upto 250mm including floor finish & deck sheet if any) inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make or equivalent) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at all level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	2	.0000074
300.0	FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.	--		
301.0	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge..	SQM	107,300	.0940554
302.0	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge.	SQM	20,000	.0211274

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	10	.0000038
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	35	.0000231
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	10	.0000121
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	10	.0000192
A306	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	73	.0000926
400.0	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.	--		
401.0	Providing, straightening, cutting, bending, placing in position at all level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	2	.0002006

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
405.0	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.	--		
a	12mm Reinforcement bar	Nos.	3	.000002
b	16mm Reinforcement bar	Nos.	5	.0000052
c	20mm Reinforcement bar	Nos.	8	.0000117
A405	Collection of material from BHEL stores, transportation, straightening, cutting, bending, placing in position at any level, binding in position of corrosion resistant steel -HCRM re-bars of approved make with steel of grade Fe-500 conforming to IS:1786 norms including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	3,020	.0586575
407.0	Collection from BHEL stores, transportation, 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	4	.0000777
500.0	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	2,700	.0005057
502.0	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.	SQM	360	.0000499
A503	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 1:4 (1 cement: 4 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	2,100	.0003855
A504	Providing and applying bitumen felt water proofing for heavy treatment having bonding materials consisting of blown type conforming to IS: 702 or residual bitumen conforming to IS: 73 or a mixture of the two with two layers of felt each consisting of seven courses and with a minimum overlap of 75 to 100 mm of felt including preparation of surfaces etc all complete for following base felts (For description of layers refer specification):	--		
b	With fiber base felt	SQM	100	.0001367

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A506	Providing and applying PU based high solid content (minimum 90%) cold liquid applied water proofing treatment with one coat of polyurethane or equivalent material based primer as recommended by manufacturer 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. min. The coating shall have high viscosity, min.450% elongation and forming a perfectly smooth permanently flexible seamless membrane which should have good adhesion to roof substrates. The cured film should have a very low water absorption rate (0.5% maximum at ambient temperature after 7 days).Item includes surface preparation, polyscrim cloth /fabric(non-woven polyscrim cloth of 100% polyester with min. weight of 40gsm/sqm), polymerised mortar base preparation, etc all complete as per manufacturer specifications and directions of engineer in charge.	SQM	1,500	.0020509
A508	Providing and laying wearing course consisting of 40mm thick plain cement concrete of grade M20 (1:1.5:3) with graded aggregate of 12.5mm size cast in panels of maximum size 1.5mx1.5m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	250	.0001761
510.0	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)	SQM	1,500	.0012558
511.0	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	30,800	.0067495

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513.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	795	.0001281
514.0	Providing and applying concrete structures two coats of ERPB (Epoxy rasin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with 300 to 325 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	17,600	.004714
A514	Providing and applying concrete structures two coats of tar extended moisture compatible coating with a DFT of 300-350 microns for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation/specifications. The system shall have minimum 7 years successful usage history in Indian conditions with the following properties -Salt spray test ASTM-B-117 : Pass 1000 hours min -Adhesion ASTM-D-4541 : 3.8 N/mm ² min -Resistance (Impedance) : 108 Ohms	SQM	12,800	.008391
517.0	Providing and laying foam concrete blocks in the toilets/sunken slab etc. complete as directed by engineer in charge.	cum	15	.0000541
A518	Providing and laying water proofing treatment for wet areasl like toilets,kitchen,pantry of sunken slab etc. with polymer based water proofing material like tapecrete ,cico or equivalent all complete with water ponding test as per IS Code and as directed by engineer in charge.	SQM	100	.0000388
600.0	JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
601.0	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	25 mm wide joints	SQM	200	.000306
A601	Supplying & installation of Preformed Duraboard HD 100 or equivalent as joint filler at joints in concrete including nailing, coating of both faces etc. all complete.	--		
a	12 mm wide joints.	SQM	10	.0000098
b	20 mm wide joints.	SQM	50	.0000774
A603	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	20	.0000105
b	20mmX25mm	RM	160	.00016
c	25mmX25mm	RM	20	.0000209
d	50mmX25mm	RM	20	.00004
604.0	Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	10	.0000007
b	12mm X 25mm	RM	80	.0000052
c	20mmX25mm	RM	10	.0000008

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
606.0	Providing and installing PVC joint sealing strips of minimum 3mm thickness and minimum width 100 mm at the construction, expansion and isolation joints from reputed manufacturers as a continuous diaphragm to contain the filler material and/ or to exclude passage of water or any other material into or out of the structure, without any longitudinal joint; and shall be procured and installed in largest practicable lengths having a minimum number of transverse joints with jointing procedure as per the manufacturers recommendations including the material and tools required for jointing, testing, protection, etc all complete. The joints in rubber seals shall be vulcanised as needed.	RM	100	.0000167
608.0	Supplying and filling in position hot applied bitumin sealing compound (Grade B) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	5	.0000005
b	12mm X 25mm	RM	25	.0000022
c	20mmX25mm	RM	5	.0000006
610.0	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)	--		
b	230 mm wide and 8 mm thick	RM	370	.0001532
d	230 mm wide and 6 mm thick	RM	375	.0002339
612.0	Providing and applying approved fire retardant sealant in joints/openings including cleaning of joints/openings, raking out groove, application of primer, scaffolding etc. all complete.	--		
a	25mmX25mm	RM	100	.0000644
b	50mmX25mm	RM	100	.0001199

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
700.0	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all 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	70	.0079602
702.0	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	50	.0069255
703.0	Same as above items 701 with BHEL supplied material (scrap) free of cost including Fabrication,loading, transportation, unloading and Erection etc. all complete from BHEL store to plant site.	--		
a	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	2	.0000737
A703	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	6	.0001905
704.0	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	kg	30	.0000035
b	PVC pipes / conduits of all diameters	kg	20	.0000122
c	UPVC pipes / conduits of all diameters	kg	20	.0000128

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:	--		
i	8mm Dia	Nos	5	.0000005
ii	10mm Dia	Nos	5	.0000005
iii	12mm Dia	Nos	5	.0000006
iv	14mm Dia	Nos	5	.0000008
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:	--		
i	HST M8	Nos	5	.0000011
ii	HST M10	Nos	5	.0000016
iii	HST M12	Nos	5	.0000025
iv	HST M16	Nos	5	.0000045
v	HST M20	Nos	5	.0000091
vi	HST M24	Nos	5	.0000122
f	Chemical Expansion fasteners (galvanised)of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc:	--		
i	HAS-E5.8 M8	Nos	5	.0000025
ii	HAS-E5.8 M10	Nos	5	.0000031

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
iii	HAS-E5.8 M12	Nos	5	.0000038
iv	HAS-E5.8 M16	Nos	5	.000006
v	HAS-E5.8 M20	Nos	5	.0000099
vi	HAS-E5.8 M24	Nos	5	.0000134
707.0	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	10	.0010216
800.0	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge. (OPC Cement will be supplied by BHEL free of cost.)	--		
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 maximum 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	250	.0002182
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	5	.0001544
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 as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	10	.0002963

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
804.0	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	5	.0004029
805.0	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	4	.0005428
806.0	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	20	.0000632
900.0	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all 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	110	.0266877

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
902.0	Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)	SQM	110	.0006609
A903	Providing, fitting and fixing solid core flush door shutter with minimum thickness of 44mm consisting of fully glued laminated board / block board of reverse straight grain timber strips with 150mm 1st class hardwood rails for the full thickness and width of core as well as around all openings to cover the end grains of the lamin boards 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, heavy door lock with profile cylinder for master key system, 125mm long stainless handles on both sides, door stop sealed with PVC or rubber strips to reduce impact sound, butt hinges, sliding bolt, knobs, (all fittings shall be heavy duty of non-corroding materials stainless steel / anodized aluminium / oxidised copper / brass), finish paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. The plywood facing on both sides shall be well matched teak or commercial 3 ply veneering with vertical grains or cross bands having minimum thickness of 6 mm as per requirement. Hardwood lipping of the same timber as the face veneer shall be provided at all edges of the door. (Finish painting paid separately)	SQM	50	.0003713

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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 on centres including void filled with mineral wool (density as per specification) including preparation of working drawings, three steel butt hinges of 100 mm length, door closer with rubber cushions, sign plates of anodised aluminium or galvanised steel screwed to the door under the horizontal bar having printed the sign, PUSH BAR TO OPEN etc. all fittings, Godrej or equivalent make mortice lock with handle on both sides, epoxy based shop paint (minimum DFT 250 micron) and epoxy based final painting etc all complete.	SQM	150	.0020483
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)	KG	40	.0000325

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A906	Providing and fixing powder coated/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)	KG	40	.0000325
A907	Providing and fixing Fire Proof steel doors (single or double shutter) with Vision panel, panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners,spot welded in position at not more than 150mm on centers including all fittings, accessories, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (min.64 kg/cum density) complete and shall be fire proof as per IS:3614, NBC 2016 and TAC requirements.vision panel shall be provided with 11mm thk inter-layered fire rated glass. All hardware and fittings such as hinges, door closure,panic trim,panic bar,handles all complete along with test certificate from authorise labs,submit shop drawing for approval, as per specification and instructions of engineer in charge.Minimum ratings shall be 2 Hrs.	SQM	70	.0009352
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	90	.0002984
b	fixed type	SQM	90	.0001937

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	10	.0000075

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing,grill 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-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	4,000	.0030118

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A910	<p>Providing, fabricating, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqmt) material consisting of 3mm thick FR grade Class B1 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicon sealant, backer rods etc. The top coated surface of ACP shall comply with the specification for coated coil for the exterior building application issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor, Reynobond or equivalent. The system shall be designed to withstand a wind pressure of</p>	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
	200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.			
b	4mm	SQM	550	.0030359
911.0	Providing and fixing of door closers as per specification ,of approved make & quality all complete of following type :	--		
a	Over head hydraulic door closures as per IS 3564	Each	1	.0000023
b	Floor mounted Hydraulic door closers as per IS 6315	Each	30	.0001244
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	1,529	.0003293

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A913	Providing and fixing in position metal rolling shutter and rolling grill type shutter as per specification made from hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248, and shall be designed to withstand a wind load of minimum 200 Kg/m ² without excessive deflection as per specification and 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 riveted with stiffening angles. (partly coiled and lath/full lath). The guides shall be either rolled or pressed deep channel section of minimum 75 mm and 25 mm wide fitted with necessary fitting and fixtures.	--		
b	Mechanically Operated	SQM	300	.0014958
c	Electrically operated	SQM	150	.0008055
A914	Providing and fixing solid core PVC doors with PVC shutter (25 thk double skin) of approved manufacturer make as per relevant IS standard including all fitting & fixtures as per specification, drawing and as instructed by engineer in charge.	SQM	50	.0002269
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.	--		
Ac	6 mm thick clear float glass	SQM	10	.0000234
d	6 mm thick wired glass	SQM	1,200	.0028747
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	125	.0004767
f	4 mm thick ground glass	SQM	2	.000005

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
h	6 mm thick clear toughened safety glass	SQM	25	.0000831
i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	50	.0002921
Ai	Two nos. 6 mm thick clear toughened safety glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	2	.0000117
k	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick plain float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	SQM	60	.0003782
j	8mm thick toughened glass	SQM	7	.000031
916.0	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	7	.0000024
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	125	.0003196
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	.0000452
919.0	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	330	.0021423
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 sealant, screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.	SQM	550	.0026382
A921	Providing and fixing of wooden panels for interior partition including fittings, fixtures etc all complete.	SQM	110	.000361

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A922	Providing and fixing automatic closing sliding glass doors with fittings, fixtures including all necessary arrangement including sensor, motor, frames, finishes etc. all complete.	EACH	1	.0003266
A923	Providing and fixing two leaf sliding door of slush welded construction 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, guide rails, rollers, fixtures, Godrej or equivalent make mortice lock with handle on both sides, epoxy based shop paint (minimum DFT 250 micron) and epoxy based final painting etc all complete.	SQM	235	.0022142
A924	Providing and applying minimum 250 micron DFT epoxy based Finish painting / polishing in desired shades on all wooden doors / windows / ventilators / partitions including thinners etc. all complete.	SQM	220	.0001126
A925	Providing and applying minimum 250 micron DFT acid resistant Finish painting / polishing in desired shades on all wooden doors / windows / ventilators / partitions including thinners etc. all complete.	SQM	10	.0000052
A927	Providing and fixing 12 mm square MS rod grills for security on windows/ventilators including fixtures, painting etc. all complete.	SQM	10	.000057
1000.0	BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. Cement for mortar Shall be supplied by BHEL as a free issue.	--		
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.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	50	.0005326

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	15	.0001436
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	5	.0000425
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/cm2(including cost of cement for brick making)	CUM	600	.007525
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	4,000	.0459859
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.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	SQM	410	.0006259
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	1,225	.0017208
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	10	.0000128
A1004	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.)- Using flat bricks.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	5	.0000062
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	5	.0000055

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1005.0	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	5	.0000125
A1006	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 of 1:6. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	20	.0002173
b	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	5	.0000501
1007.0	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	20	.0000056
1008.0	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	20	.0000556
1009.0	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	113	.0000155
1011.0	Providing and filling brick bats in soak pits all complete.	CUM	5	.0000088
1100.0	DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1102.0	Providing Damp Proof Course 50mm thick 1:1.5:3 concrete (6 mm and down graded stone chips) with 1% of approved admixture of water proofing compound all complete. Then hot bitumen (residual petroleum bitumen of penetration 80/100 of approved quality) shall be applied over the prepared surface in two coats at the rate of 1.7kg per sq. meter per coat and dry sand spread over it	--		
b	50mm thick	SQM	500	.0002135
1200.0	PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
A1201	Providing 20mm thick plaster in two layers outside the building/boundary wall with an under layer 12 mm thick in CM 1:5 and top 8 mm thick layer in CM 1:3 (Sand faced) with approved water proofing compound on walls, finished to a smooth finish with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel over plastered surface (Aldeck smooth finish) including providing 3mmx3mm size grooves at junctions of two dissimilar materials etc all complete.	SQM	8,200	.0037321
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on even side of walls finished to a smooth finish with approved water proofing compound on walls, finished to a smooth finish with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel over plastered surface (Aldeck smooth finish) as per specification all complete.	SQM	11,700	.0035063
B1202	Providing 18mm thick plaster inside the building/boundary wall in cement mortar 1:4 on uneven side of walls finished to a smooth finish with approved water proofing compound on walls, finished to a smooth finish with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel over plastered surface (Aldeck smooth finish) as per specification all complete.	SQM	5,300	.0022038
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	1,520	.0004441

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	50	.0000112
A1206	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	45	.0000187
1207.0	Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battens, 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	20	.000001
A1207	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	200	.0000583
A1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge.	SQM	250	.0002009
1209.0	Ruled pointing in masonry in Cement Mortar 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	120	.0000288
1300.0	FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		
A1303	Providing and applying two or more coats of water bound distemper as per IS 427 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	60	.0000075

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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	16,900	.0020068
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	500	.0000848
1306.0	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	10	.0000052
1307.0	Providing and applying two coats of Epoxy coating with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	SQM	50	.0000153
1308.0	Providing and applying 2 or more coats of Chlorinated Rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying chlorinated rubber zinc phosphate primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, inclusive of intermediate coat of Titanium dioxide / micaceous iron oxide complete as per specifications.	SQM	1,400	.0004022
1309.0	Two or more coats of fire resistant transparent paint (@3.5 litre per sqm per coat) as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications. French polish payment will be made separately.	SQM	120	.0000492
1310.0	Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.	SQM	45	.0000045

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1312.0	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	7,700	.0009576
A1314	Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. The paint should have VOC content limit less than 200 grams per litre.The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulphide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	450	.0004128
1316.0	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	300	.0000396
1317.0	Providing and applying 2 mm thick white cement 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	200	.0000243
1400.0	FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
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 12.5 mm 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	6,300	.0047318

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with non-metallic hardener pigmented topping 12mm thick 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 non-metallic concrete of 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	6,400	.0048069
A1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with non-metallic hardener pigmented topping in skirting and dado etc all complete as per specification.	SQM	25	.0000158
A1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300X300X22 mm thick of approved shade using colouring pigments and hard chips like carborundum, quartz etc.as per IS 1237 and laid as per IS 1443 over concrete under bed 1:3 (1 cement : 3 sand) jointed with neat cement slurry etc. all complete including rubbing, curing, grindig and polishing complete with laying to result in over all thickness of 50 mm all complete for following:	--		
a	Laid in floors	SQM	2	.0000033
b	Laid in skirting	SQM	10	.0000223
A1405	Providing and laying 50 mm thick floor finish with 250X250X20mm thick Terrazo Tiles including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	60	.0000841
B1405	Providing and laying 25 mm thick cast-in-situ Terrazo in flooring/skirting as per IS: 2114 using white cement or cement with colouring pigment including cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry etc. all complete.	SQM	10	.000014

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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 30 mm thick 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 @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	70	.0004851
1414.0	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete. including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	300	.0020987
A1416	Providing and laying glazed vitrified ceramic tiles 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	100	.0002064
d	10mm thick tiles In skirting and dado upto specific height	SQM	24	.0000513
1417.0	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following	--		
b	10mm thick tiles In flooring	SQM	170	.0003509
c	7mm thick tiles In skirting and dado upto specific height	SQM	605	.0011196
d	10mm thick tiles In skirting and dado upto specific height	SQM	150	.0003206

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1418.0	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, cement slurry 3.3kg/sqm complete as per specification laid in pattern of following sizes	--		
a	400X400 mm	SQM	450	.0010468
A1418	Providing and laying min.10 mm thk Double Charge Glazed vitrified tiles of make johnson,Qutone,Varmora or equivalent in flooring and skirting over 38 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, cement slurry 3.3kg/sqm complete as per specification laid in pattern etc. all complete as instructed by engineer incharge.	--		
a	400X400 mm	SQM	100	.0002326
b	600X600 mm	SQM	40	.0000938
c	800x800 mm	SQM	300	.0007092
1419.0	Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete.	SQM	10	.0000831
A1420	Providing and laying Heavy Duty anti skid Ceramic Tiles with matt finish of 10mm 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	760	.000874
b	600X600 mm	SQM	500	.000575

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1422.0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles conforming 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	300	.0013396
b	38mm thick	SQM	1,500	.0099147
1424.0	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	79	.0003383
1428.0	Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	10	.0000046

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1429	Providing and fixing Removable type flooring system (raised access floor) consisting of of fire resistant Cementitious panels of 600 x 600x 35 mm and Laminated with 1.2 mm thick fire retardant food grade antistatic laminate top finish to ensure max bonding to the steel surface. Cementitious panels shall be steel welded construction, with an enclosed bottom pan of 64 hemispherical and top plain sheet which are fuse welded at multiple location to form a panel. The panel is coated with 40-60-micron epoxy coat after cleaning, degreasing, phosphate by several tank processes & is heated to achieve max adhesion to the panel surface & corrosion resistance. The inner empty core of the panel is injected with a light weight fire retardant, non-combustible cementations compound at high pressure to fill in all the crevices of the panel and ensures support of not less than 90% of the top surface area of the panel. Pedestal (300mm to 800 mm) must be 25mm dia. pipe with min.2.0 mm thickness with bottom plate of 100x100x min.2.0mm thick & top plate must be 75x75x3.0 mm. All pedestal shall be tightening to Stringer of 20x30x575x1.0 mm Rectangular tube. The system shall be design for Uniformly distributed load (UDL) of 13 KN (1300 kg/ sqm), for the same all complete as per specification.	SQM	10	.0000877
1430.0	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.	--		
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	100	.0000069
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	150	.0000239

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1431	Providing and fixing 15mm thick wooden panel flooring and skirting of greenlam or equivalent of approved color,shade multi-layered engineered wooden planks treated with VOC free lacquers and stains to provide extra strengthening, longevity and durability to planks. In all planks each layers are arranged at cross grain to each other for provide the balancing and stability to all three layers. Top layer of flooring is made up of about 3.0 mm thick thermosetting re-polish able natural veneer setting on a core of about 10 mm thick pine wood that produce natural characteristic of wood with 2.0mm thick bottom ply based veneer balancing layer. The planks are joint to each other through plankloc system with glue less technology system and laid on 2mm thick dual barrier underlay protecting sheet having anti-bacterial, Anti-termite, fire-resistant, noise reduction, high wear and abrasion resistance, water resistant properties. The system includes all accessories like beading, Quadrant, Veneered/solid wood skirting, end profile etc.as per as per manufacturer specification and approved by Engineer Incharge.	SQM	10	.0000353
A1432	Providing and applying ready made Epoxy Paint in flooring with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, splash, spillage & acidic environment. The epoxy paint coating shall be of 150micron thickness over epoxy primer	SQM	250	.0001291
A1433	Providing and applying two coats oil resistant Paint in flooring with suitable pigments of approved shade as per specification and direction of Engineer.	SQM	10	.0000052
1500.0	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1502.0	Designing, providing, erection 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 @ 275 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.	--		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	62	.0001416
1503.0	Providing and fixing 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	1	.0000355

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1506.0	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 150 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 silicon modified super polyester paint of minimum DFT 7 microns over suitable primer.	SQM	250	.0003727
A1510	Designing, providing and fixing Inner 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 180 gm/sqm total on both sides of sheet including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified super polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with silicon modified super polyester paint of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers made of at least 2mm thick galvanised steel sheet of grade 375 as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting.	SQM	6,050	.0113203
1512.0	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 wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.	--		
a	For insulation in Sandwich Cladding	SQM	75	.0000725

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	For underdeck insulation below RCC slabs	SQM	75	.0000822
A1512	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 including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.	SQM	25	.0000242
A1514	Providing and installing 50 mm thick under deck insulation with resin bonded mineral wool conforming to IS 8183 backed with 0.05 mm thick alluminium foil and 24 G x 25 mm wire mesh netting including fixing with 100x50x6 slotted mild steel plate welded to MS plate insert embedded at the soffit of the slab at suitable distance and 14G steel wire drawn through slots and fixing to wire netting etc. all complete.	SQM	100	.0001021
1600.0	FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
1601.0	Providing and fixing glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preperation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.	--		
a	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	70	.0000703

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon or approved equivalent lineal panel of 75 mm to 300mm width as per design detail with corrosion resistant aluminium alloy panels of minimum thickness 0.8mm as per detail design. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc. all complete as per specification. Suitable M.S. channel grid with minimum MC 100 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	200	.0006413
A1604	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamelled finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of minimum thickness 0.8mm including 50mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 100) grid 1200 c/c maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.The work to be complete as per specifications, drawings and direction of engineer.(Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	500	.0015078

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1606	Providing and Fixing 12mm thick Gypsum board plain/mineral fibre based acoustic perforated ceiling tiles of approved design (600x600mm) of approved manufacturer India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint as required of approved colour to give an even shade with smooth finish all complete(paint to be paid separately).as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	600	.0009069
1700.0	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
1708.0	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of heavy duty all complete for following diameters.	--		
a	100 mm dia	RM	100	.0002843
b	150 mm Dia	RM	100	.0003699
c	200 mm Dia	RM	20	.0001037
1709.0	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	110 mm Dia	RM	100	.000073
b	160 mm Dia	RM	1,305	.001447
c	200 mm Dia	RM	15	.0000246
1800.0	MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
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	529	.0012138
1802.0	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	10	.0000372
1803.0	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	10	.000028
1804.0	Providing and fixing weep holes in Retaining wall, drains, etc 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 all complete.	EACH	140	.0000406
1805.0	Providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture phenolic base (krishna conchem or equivalent) in concrete as per detail specification of manufacturer etc. all complete. Payment shall be made per cum of concrete.	CUM	27,177	.0361917

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1807.0	Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment).	SQM	1,100	.0002555
1808.0	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	25	.0004307
1809.0	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	EACH	100	.0014568
1810.0	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NOS	3	.0000334
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	60	.0000073
1816.0	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	150	.0021043
A1816	Providing and fixing pressure release valve of gun metal in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	40	.0005612
1820.0	Supply and laying fire clay refractory brick work with fire clay mortar conforming to IS: 6 & 195 including curing etc. all complete on tank pads & in building walls.	CUM	6	.0002217

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1821.0	Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust suppression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling).	TANK-HR	15	.000015
1823.0	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	15	.0000508
1827.0	Anti weed chemical treatment of soil with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterilization test certificate, performance guarantee of three years etc. all complete.	SQM	1,000	.0000075
1828.0	Providing and placing approved quality of 250 micron thick heavy duty low density polyethylene liner (LDPE) films manufactured from polyethylene resin over cement sand mortar 1:4 in the base of reservoir/pond as well as on side slopes of embankment to prevent seepage including joining with approved method including testing, necessary excavation, fixing at the edges in plain cement concrete by providing 400mm wide and 300mm thick plain cement concrete 1:2:4 on the top of embankment (the cost of plain cement concrete 1:2:4 shall be excluded and shall be payable separately) as shown in the drawing etc all complete as per specification and as directed by the engineer-in-charge. Minimum width of LDPE liner shall be 6m.	SQM	630	.0000425
1829.0	Providing and placing 300mmx300mm size and 75mm thick precast concrete tiles of grade M-20 over 50 mm thick 1cement:4sand mortar on LDPE liner at the bed of reservoir and on side slopes of embankment, filling joints with 1cement : 3sand mortar etc all complete as per specification and as directed by the engineer-in-charge. The rate shall be inclusive of cement sand mortar as well.	SQM	630	.0014797
1831.0	Providing random rubble (RR) stone masonry in foundation, super structure, boundary wall, retaining wall and embankment with cement mortar 1:6 at all elevations including all labour, material, equipment, handling, scaffolding etc. all complete.	CUM	375	.0020566

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
Aa1835	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	220	.0001591
Ba1835	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	220	.0001591
A1841	Providing and fixing fly proof mesh of suitable size including all fittings, cutting and making good the wall where required etc. all complete.	SQM	8	.0000028
A1863	Providing, laying 150 dia stoneware pipe with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for sewage soakpit confirming to IS:651 as per specifications	RM	65	.0001518
A1864	Providing and fixing CI cowl with mosquito proof wire mesh at the top cover slab of sewage soakpit including sealing of opening etc all complete as per drawing and specification.	Nos.	5	.0000033

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1865	<p>Procurement, supply & installation of Tubular Day-Light System on the Roof top /vertical walls of the Building with Transparent Prismatic Dome (Solar Collectors) of clear polycarbonate sheet of minimum 3 to 4 mm thickness and Daylight Pipe (That Carries multiple reflections from the Daylight pipes specular inside surface) inside the building to transfer sunlight to the indoor spaces through diffusers. The transparent dome collects sunlight from above the roof level and then the daylight pipe guides the same to the interior spaces of a building. The diffuser shall be installed as per the required lumen output as per design and specification. While installing the daylight pipe, correct type of roof flashing should be used so that no ingress of water, dust, etc. takes place at the junction between masonry Work and daylight pipe. The dome, light pipe and diffuser should be electrostatically neutral during installation. The lumens output shall be as per standard. The Transparent dome having the following attributes adequate impact strength, sufficient daylight capture surface, high transmittance for the visible spectrum i.e. 400 - 750 nm, surface designed to scatter light uniformly; fire resistance, U-V stabilized, U-V blocking (up to 380 nm) and capable of preventing the ingress of moisture, dust, anti-bird measures, etc. the Daylight pipe system should have the following features: high impact strength; high transmittance for visible portion of sunlight spectrum i.e. 400 - 750 nm; purest color rendition (no color shift); U-V stabilized; U-V blocking (up to 380 nm); fire resistance; low attenuation of solar radiation while traversing the length of light pipe and any bends therein; minimal transmission of heat along with daylight; (preferably) low aspect ratio (length : diameter); and arrangement for control of available sunlight. The daylight pipe and associated items are required to be maintenance free. The diffuser should be for the following: transmittance of required amount of daylight and to spread it efficiently throughout the space to be illuminated; there should be no glare; visual comfort; 99% U-V blocking (up to 380 nm); resistance to impact; fire resistance; prevent ingress of moisture and dust; U-V stabilized; control of light output, including switching off the light during daytime. The dia. of the opening and the location shall be as per the design ,drawing and specification.</p>	NOS	30	.0002915

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2000.0	FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
A2001	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 gauge (excluding PVC coating) of mesh size 75mm x 75mm. GI barbed wire fencing of height of 600 mm at top of chain link fencing shall be provided with 3 lines of 12 gauge high tensile spring steel wire for the entire length of fencing. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 50X6 mm galvanised MS flat at every fifth post sandwiching the fencing with post, accessories etc. all complete. (Structural post shall be separately under item 2007)	RM	190	.0005299
A2005	Supplying and fixing 600mm high anti climbing G.I. barbed wire fencing on top of boundary wall consisting of 8 nos. strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply with barbs of 16G spaced at 100mm including GI clips, anchors, accessories etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	50	.0000056
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/m ² on steel posts.	MT	1	.0001253
A2009	Supply, fabrication and installing in position and testing hot dipped galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, tubular sections (conforming to IS: 1161), square welded mesh with 4 mm dia GI wire fabric & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, 20 mm wide x 80 mm dia flat MS roller at the bottom, paintings, fixing to post etc. all complete as per specification.	MT	3	.0004179

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2100.0	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	2	.0002661
A2011	Supply, fabrication and installing in position electrically operated galvanised MS gate of approved size and design, erecting and fixing at main entrance including all guides, rails, alignments, control panels, switches, paintings etc all complete as per specification and as directed by Engineer.	MT	3	.000439
A2012	Supply, fabrication and installing in position wicket gate of approved size and design, erecting and fixing including all fittings, fixtures, paintings etc all complete as per specification and as directed by Engineer.	MT	2	.0002661
A2013	Supply, fabrication,installing and fixing in position manually operated traffic barriers including all fitting and fixtures, paintings etc all complete as per specification and as directed by Engineer.	Each	3	.0000253
2100.0	WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.Cement Shall be supplied by BHEL as a free issue.	--		
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.	NOS	15	.0000198
2102.0	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	15	.0000063
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.	NOS	15	.0000106

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
b	50mm nominal bore.	NOS	15	.0000187
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	15	.000009
b	20 mm nominal bore.	RM	15	.0000101
c	25 mm nominal bore.	RM	15	.0000122
d	50 mm nominal bore.	RM	15	.0000192
A2104	Providing and fixing HDPE pipes conforming to IS:4984 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	120	.0000252
b	20 mm nominal bore.	RM	120	.0000252
c	25 mm nominal bore.	RM	120	.0000252
Ac	32 mm nominal bore.	RM	100	
d	50 mm nominal bore.	RM	120	.0000252
e	65mm nominal bore.	RM	120	.0000252

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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:	--		
a	15 mm nominal bore.	RM	10	.0000046
b	20 mm nominal bore.	RM	10	.0000054
c	25 mm nominal bore.	RM	10	.0000067
Ac	32 mm nominal bore.	RM	100	
d	50 mm nominal bore.	RM	10	.0000114
e	65mm nominal bore.	RM	10	.0000161
A2106	Providing and fixing Wall to wall Bathroom mirror (6 mm thick float glass) with high square edges from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	15	.0000206
2107.0	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	NOS	25	.0000261
A2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 20mm) all complete.	EACH	25	.0000269
A2111	Providing and fixing stainless steel / C.P. liquid soap holder cum dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	25	.0000275
A2114	Providing & fixing in position polyethylene (P.V.C.) water tank conforming as per IS12701 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 of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
a	500 litres capacity	NOS	2	.0000103
b	1000 litres capacity	NOS	3	.000031
c	2000 litres capacity	NOS	3	.000062
d	5000 litres capacity	NOS	3	.0001551
A2115	Providing and fixing approved heavy duty stainless steel sink/wash basin with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	2	.0000228
A2116	Providing and fixing Electric operated hand dryer with photo voltaic control including all fittings, cutting and making good the wall where required etc. all complete.	EACH	2	.0000369
2200.0	SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		
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, 40mm CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	2	.0000085
2203.0	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	2	
A2203	Providing and fixing stainless steel kitchen sink of size 750x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	30	.0002657

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
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.	--		
a	Floor mounted	EACH	15	.0001152
b	Wall mounted	EACH	15	.0002249
2205.0	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	30	.0002357
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.	EACH	25	.0002382
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.	--		
a	75mm dia pipes	RM	25	.0000101
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	140	.0001217
b	300mm dia	RM	115	.0001275
c	450mm dia	RM	40	.0001302

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
d	600mm dia	RM	70	.0002933
e	900mm dia	RM	50	.0003279
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	45	.0000271
Aa	200 mm dia	RM	190	.0001528
b	250mm dia	RM	45	.0000362
c	300mm dia	RM	40	.0000348
d	450mm dia	RM	30	.0000345
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	10	.0000371
b	600mm dia	RM	10	.0000476
c	900mm dia	RM	5	.0000466
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	15	.0000677
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	10	.0000394

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2213.0	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber (Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:	--		
a	100x100mm P or S Type.	EACH	30	.0000642
b	150x100mm P or S Type.	EACH	20	.0000448
c	150x150mm P or S Type.	EACH	20	.0000484
2214.0	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	35	.0000618
2215.0	Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete.	EACH	25	.0000428
2216.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	2	.000105
2217.0	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	2	.0001309
2218.0	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	50	.0001048
2219.0	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	2	.0000765
A2219	Providing and fixing Emergency eye wash cum shower including all fittings etc. all complete as per IS 10592 and specification.	EACH	2	.0000765

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2220.0	Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.	--		
a	75mm dia pipes	RM	25	.0000548
b	100mm dia pipes	RM	25	.0000708
c	150mm dia pipes	RM	40	.0001567
d	200mm dia pipes	RM	40	.0002444
e	250mm dia pipes	RM	40	.00031
2222.0	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.	--		
a	Upto 75 mm dia	RM	5	.000001
b	100 mm dia	RM	5	.0000022
c	150 mm dia	RM	2	.0000018
2300.0	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2301.0	Transportation, Fabrication, erection and alignment 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 red oxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 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 (BHEL to supply steel free of cost).	MT	50	.0019787
A2302	Extra over ST NO. 2301 for blast cleaning by shot / metal blasting of steel structures to near white metal surface(Sa 2 1/2) as per SIS05-5900 and applying 2 coats of zinc silicate primer (one coat at shop and one coat after erection) instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete as per specification.	MT	40	.0003437

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2304.0	Extra over ST No. 2301 for 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	10	.0000376
A2305	Providing and applying two coats of High built epoxy finish paint of approved brand over steel sections already having primer coats. Dry film thickness of each finish coat shall be 90 microns. The undercoat and finish coat shall be of different tint to distinguish the same from finish paint. The total dry film thickness with primer shall not be less than 300 microns. The item includes protection, cleaning, scaffolding, touch-up painting etc. all complete as per specification.	MT	50	.0003561
2320.0	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	2	.0010441
A2320	Supply, fabrication and fixing of G.I stainless steel ladder in forebay conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete as per drawing	MT	3	.0015662
2321.0	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payments terms - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	15	.0022522
A2321	Supply, fabrication and fixing of MS pipe hand railing (1250 mm) of 32 mm/40 mm dia hot dip galvanized and confirming to IS 1239 (Medium) including transportation, loading/unloading etc. all complete as per specification.	MT	5	.0007507
A2322	Supply, fabrication and fixing of GI pipe hand railing (1250 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete as per specification.	MT	25	.0042563
2400.0	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. Cement Shall be supplied by BHEL as a free issue.	--		

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at Udangudi Thermal Power Station

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2401.0	Preparation of sub grade by excavating earth to required depth for all types of soil/rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	6,200	.0005806
2403.0	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	1,760	.0021427
2404.0	Providing & laying water bound macadam sub base course in layers of required thickness with crushed stone aggregates 90 to 40 mm down size (IRC 19 - grading -1), stone screening & blinding material including screening, sorting, spreading to template & consolidation with road roller including carriage, spreading & consolidation of blinding material moorum etc all complete.	CUM	2,650	.0069736
2405.0	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -1), 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	1,760	.00447
A2413	Supplying and laying 600mmx200mmx380mm 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	4,700	.0033204
A2414	Supply and laying 150 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	160	.0001391
B2414	Supply and laying 600 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	35	.0001466

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2415.0	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 (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment terms - a) On receipt of materials at site - 50%; b) On completion of erection & fixing - 50%.	RM	5	.000003
A2419	Providing and laying cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (Bipolar Concrete Penetrating Corrosion Inhibiting Admixture (CPCIA). CPCIA shall be free from nitrites, chromates and non-migrating types and having 7-8 years of usage history in Indian conditions conforming to ASTM-G-109 with an efficiency factor of minimum 25 times. Dosage as per manufacturer specifications shall be compatible with the type of cement used.),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	5,000	.0262876
2421.0	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	2,000	.00935
REIN FORC EMENT	--	--		
A2422	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	30	.0030083
A2423	Straightening, cutting, bending, placing in position at any level, binding in position of corrosion resistant steel -HCRM re-bars of approved make with steel of grade Fe-500 confirming to IS:1786 norms including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.	MT	150	.0029135

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2424	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer.	MT	2	.0002006
MISC ELLA NEO US	--	--		
A2425	Providing & installation of bitumen impregnated fibre board of specified thickness 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.	RM	600	.0007507
A2426	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	7,400	.0004851
A2429	Providing & laying 80 mm thick precast interlocking concrete(M20) pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	2,400	.0017272
A2431	Providing and laying 100mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	2,400	.0006752
A2432	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15-2002 etc all complete as per specification, drawing and as directed by Engineer.	SQM	17,600	.0023946
A2433	Providing and laying Inverted Choke with 25 mm course of screenings (Grading-B) over prepared subgrade including compaction etc all complete as per specification, drawing and as directed by Engineer.	CUM	450	.0015761

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A2434	Providing and fixing precast Bollards (150mm dia and 1.2metre high spaced @ 2.0m c/c) of concrete grade min M25 near road for equipment if requires protection etc. all complete as per approved location and instruction by engineer Incharge.	EACH	10	.0000066
A2435	Providing and installation of vehicle management signs,dual worded(English & Hindi) as per Indian standards including supports etc. all complete as per drawings, specifications,manufacturer's recommendations, indian standards.	EACH	10	.0001166
TOTAL Weightage				1.0