

**TENDER SPECIFICATION  
BHEL PSSR SCT 2009  
FOR  
Civil, structural & architectural works for Flue Gas  
Desulpherisation system of Unit 12 at 1x800MW Kothagudem  
Power project, Khammam District., Telangana state**

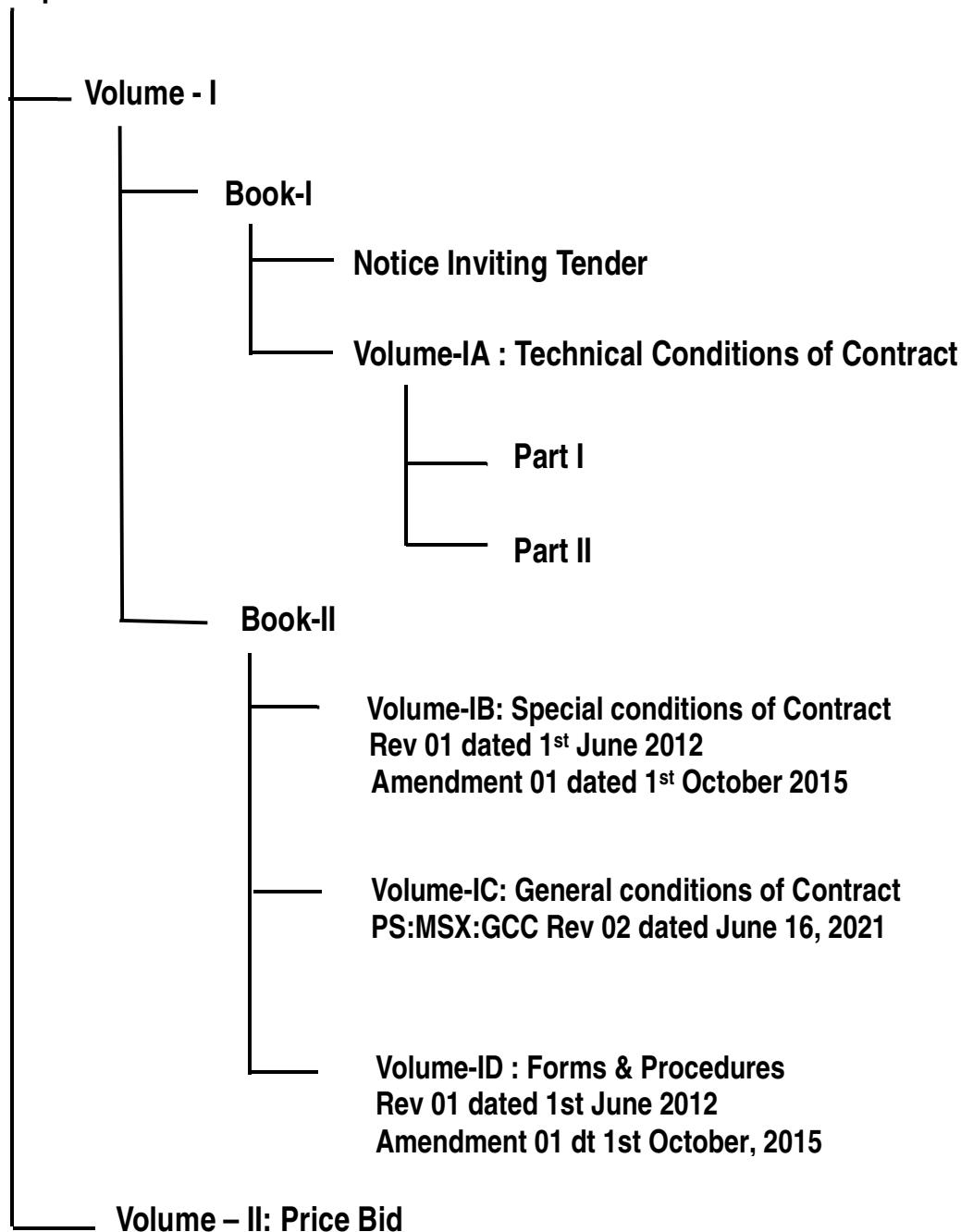
**PRICE BID  
VOLUME –II**



**BHARAT HEAVY ELECTRICALS LIMITED**  
(A Government of India Undertaking)  
Power Sector – Southern Region  
690, Anna Salai, Nandanam, Chennai – 600 035

## **TENDER SPECIFICATION CONSISTS OF**

### **Tender Specification**



## PRICE BID

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CONTENTS	
Description	No. of pages
Part A : Instructions to the Bidders	01
Part B : Format for total amount (Enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender)	(Separate Excel File)
Part C: Bill of quantities with weightage for amount of each items with respect to the total quoted price	66

## **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. Tenderers are requested to affix their company seal and authorized signature in all pages.
3. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)" and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/ formats will not be entertained.
4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid.
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.
9. The quantities given in the contract 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. No compensation becomes payable in case the variation of the final executed contract value is in plus side

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
100.0	EARTH WORK	--		
--	Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following.	--		
101.0	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	42,962	.0161135
b	Depth exceeding 2 m but not exceeding 4 m	CUM	23,430	.0110005
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1,809	.0010592
d	Depth exceeding 6 m but not exceeding 8 m	CUM	528	.0003861
e	Depth exceeding 8 m but not exceeding 10 m	CUM	50	.000044
f	Depth exceeding 10 m but not exceeding 15 m	CUM	50	.0000506
102.0	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	9,758	.0020011

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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.	--		
a	Depth from ground level but not exceeding 2 m	CUM	233	.0001012
b	Depth exceeding 2 m but not exceeding 4 m	CUM	1,290	.0006753
c	Depth exceeding 4 m but not exceeding 6 m	CUM	2,683	.0016796
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1,440	.0010841
e	Depth exceeding 8 m but not exceeding 10 m	CUM	100	.0000863
f	Depth exceeding 10 m but not exceeding 15 m	CUM	100	.0000953
104.0	Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	5	.000004
b	Depth exceeding 2 m but not exceeding 4 m	CUM	5	.0000048

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
c	Depth exceeding 4 m but not exceeding 6 m	CUM	400	.0004609
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1,600	.0022105
105.0	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc. as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/ statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/ disposal of surplus excavated material within a lead upto 500m, spreading/ levelling of disposed materials etc all complete for following depths below ground level.	--		
c	Depth exceeding 4 m but not exceeding 6 m	CUM	5	.0000057
d	Depth exceeding 6 m but not exceeding 8 m	CUM	5	.0000068
e	Depth exceeding 8 m but not exceeding 10 m	CUM	20	.0000315
f	Depth exceeding 10 m but not exceeding 15 m	CUM	20	.0000346
106.0	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level.	--		
f	Depth exceeding 10 m but not exceeding 15 m	CUM	20	.0002033
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 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/ compaction by manual/ mechanical means, dressing etc. all complete for the following.	--		

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	18,593	.0045654
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	16,500	.0044967
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 earth directly from excavation within a lead upto 1Km and compacted as specified, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.	--		
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	1,970	.0001488
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	12,910	.0008709
c	Each layer compacted so as to achieve at least 85% maximum dry density as per IS-2720 (Part-VII)	CUM	265	.0000136
A109	Extra over ST No. 101 and 103 to 108 for carriage of material/earth within or outside plant boundary for every 500 m or part thereof beyond initial lead for stacking/backfilling of serviceable material/ earth or disposal of serviceable/ unserviceable material/ earth, as applicable.	CUM	23,481	.0006969
110.0	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 required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty/ seigniorage fee (if any), sorting, spreading, breaking clods, watering, ramming/ compaction by manual/ mechanical means, dressing, finishing to required lines, grades and slopes, testing, all lead and lifts etc. all complete as per specification, drawing and as directed by the engineer for the following:	--		
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	235	.0003228

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#### at Kothagudem Stage VII Unit 12, 1 X 800 MW

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b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	240	.0003257
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	1,450	.0089362
--	200 CONCRETE WORKS	--	--	--
--	Providing and placing concrete work including cost of labour, materials and equipment for handling, transportation, batching, mixing, placing, vibrating and curing, (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. (Cement shall be provided by BHEL as free supply)	--	--	--
201.0	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as filling course at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	126	.0012542
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	160	.0015926
ISG 202	Concrete of design mix of grade M10 of 20 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. 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.	CUM	10	.0000995
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	1,839	.0183055

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ISG 203	Concrete of design mix of grade M15 of 20 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. 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.	CUM	502	.0049969
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	17	.0001692
205.0	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/ substructure, grade slab, paving, drains, under floors etc. at any level below finished floor level, any shape, position or thickness etc. complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
ISG a	M20 Grade	CUM	431	.0042902
a	M25 Grade	CUM	8,791	.0962827
b	M30 Grade	CUM	1,932	.0212904
A205	Providing and laying Design Mix cement concrete (M20) conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in grade slab and paving using Vaccum Dewatered Flooring (VDF) method etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing.	CUM	1,887	.0197202

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
206.0	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
b	M30 Grade	CUM	55	.0005997
A206	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at different levels above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
a	M25 Grade for all works upto 20M level	CUM	2,074	.0224803
b	M25 Grade for all works above 20M up to 40M level	CUM	340	.0040541
c	M25 Grade for all works above 40M level	CUM	10	.0001311
ISG 206	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in crusher house including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	110	.001165

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

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207.0	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	2,198	.0255383
210.0	Extra over ST Nos. 205 to 207 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	1,000	.0010577
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. (Payment of welded wire mesh, chicken wire mesh shall be made separately)	--		
a	M20 grade	CUM	63	.0006271
ISG 211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 20mm 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. (Payment of welded wire mesh, chicken wire mesh shall be made separately)	--		
a	M20 grade	CUM	19	.0001891
212.0	Scree concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.	--		
a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	228	.0022695

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

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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.	--		
b	M 30 grade	CUM	94	.0016641
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 confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades.	--		
b	M 30 grade	CUM	265	.0038141
ISG 214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262- 2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures or under grounds structures including addition of suitable plastisizer cum waterproofing cement additives such as	--		
a	M 25 grade	CUM	10	.0001485
b	M 30 grade	CUM	1,650	.0249368

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#### at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
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	25	.0000824
b	Reinforced cement concrete of all grades	CUM	115	.0005396
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	352	.0000589
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	1,057	.0000143
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	1,501	.0008708
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	13	.0001284
ISG 221	SHOTCRETING	--		
--	Shotcreting (Gunning) specified concrete surfaces as per the following specifications including all materials. Labour, tools and plants, scaffolding etc all complete as per the directions of Engineer in charge,:  i. Fabricating and fixing in position 6mm M S bars at 750mm c/c including connecting to the lugs for fastening	--		

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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
--	ii. Fixing wire fabric confirming to IS:1566 as reinforcement with 3mm diameter spaced at 50mm c/c both ways electrically cross welded including securely tying to the 6mm MS bars by maintaining 100mm overlap for adjacent sheets	--		
--	iii. Fine aggregate shall consist of natural sand or crushed stone from a known source and shall be strong, hard, coarse, sharp, chemically inert, clean and free from any coating. It shall be free from clay, coal or coal residue, organic or any other impurities that may impair the strength or durability of the concrete and shall conform to IS: 383. The fineness modulus shall be preferably between 2.5 and 3.3. Any other value can be used, with prior approval of the Engineer. Fine aggregate (Sand) shall be well graded and particles shall range in size within limits. The Engineer may approve the use of any other grading as per requirement or as per IS: 9012.	--		
--	iv. The surface after the placement of reinforcement and / or welded mesh and not more than six hours prior to the application of concrete, shall be thoroughly cleaned of all loose materials and dirt. The Contractor shall properly prepare the surfaces, reinforcement and / or welded mesh to receive the shotcrete. Cleaned surfaces shall be wetted not more than hour prior to shotcreting.	--		
--	v. The mix as placed on surface shall be one part cement to three parts approved sand by mass. Cement and sand shall be dry mixed; no water shall be added after mixing and before using in the gun. The quantity of water when added shall be only that which is sufficient to hydrate the cement. For average atmospheric conditions, the water cement ratio for shotcrete in place shall be between 0.35 and 0.5 by mass. Suitable admixture shall be used wherever required.	--		
--	vi. A uniform pressure of not less than 3 Kgf / cm <sup>2</sup> at the nozzle shall be maintained. Necessary adjustments shall be made to ensure this pressure, taking into account the length of hose and height of the place to be shotcreted, above location of the machine.	--		
--	vii. The application shall proceed in an upward direction. Beams, stiffeners and intermediate walls, if any, shall be wrapped with wire fabric and completely covered with shotcreting. All rebound shall be removed from the area of application as the work progresses and such rebound material shall not be reused.	--		

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--	viii. As soon as the freshly shotcreted surface shows the first dry patches, a fine spray of water shall be applied to keep too moist. After the surface has hardened, it shall be kept continuously moist for minimum seven days. If there is extreme heat, especially when accompanied by hot winds, the shotcreted surface, immediately upon completion, shall be covered with burlap or similar covering, which must be kept continuously moist for 14 days after shotcreting. The temperature of the lining shall not be permitted to exceed 38oC during placing and curing.	--		
--	Note: 6mm MS Reinforcement and welded wire mesh as specified shall be used for thickness of Shotcreting above 50mm.	--		
--	a. Shotcreting for thickness 50mm and above of with 6mm MS Reinforcement and welded wire mesh as specified	Sqm	200	.0016573
--	b. Shotcreting for thickness 25mm without 6mm MS Reinforcement and welded wire mesh as specified	Sqm	2	.0000116
222.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	1	.0000001
--	300 FORM WORKS	--		
--	Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.	--		
301.0	Fairface form work with good quality water proof ply wood of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	21,022	.0338074
ISG 301	Ordinary form work below finished ground floor level for lean concrete, mud mat, plum concrete etc.	SQM	750	.001109

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
302.0	Fairface form work with good quality water proof ply wood of required thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights.	SQM	14,218	.0272772
ISG 302	Ordinary form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc for all heights.	SQM	50	.0000868
ISG 303	Providing ,fixing & removing curved type of shuttering including staging, propping (cost incl. of submitting supporting design & drawing and approval etc.) at all locations, heights and levels above or bellow ground with Slip Formwork complete as per specification and directions of engineer incharge	SQM	1	.0000022
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	131	.0000841
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	116	.0001265
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	123	.0002416
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	324	.0010028
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	30	.0001343
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	350	.0020701
305.0	Extra over item no.301 and 302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.	--		
a	Extra for Curve Shuttering for Item No. 301	SQM	250	.0000803

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
b	Extra for Curve Shuttering for Item No. 302	SQM	250	.0000958
305	Fairface plywood with filmface/laminated formwork above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights where ever specifically mentioned in the drawing.	SQM	1	.000004
--	400 REINFORCEMENT	--		
--	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 for the following:	--		
401.0	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	11	.0020235
402.0	Transportation, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement steel shall be provided by BHEL as a free supply.)	MT	1,901	.0792658
S402	Supply including delivery at site, steel reinforcements of TMT steel of grade Fe-500, Fe-500D or 500EQR as applicable conforming to IS:1786 complete all as per specifications, drawings and as directed by Engineer, from the Customer approved agencies. Note - This item shall be operated if required, at the discretion of BHEL.	MT	50	.0084201
407.0	Providing, straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	4	.0007358

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
408.0	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 including transporation from store.	MT	4	.0001668
--	500 WATER PROOFING WORKS	--		
--	Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL as free supply)	--		
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	2,578	.0007234
ISG 502	Providing and laying rigid insulation (extruded polystyrene blocks) as per relevant IS Code in suitable panels over roofs. The block shall be strong enough to withstand without deformation the workload and standard loads expected on the roof. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints including filling with sealants at suitable intervals etc all complete as per specification for following.	--		
a	Average 50 mm thickness	SQM	250	.0005329
A505	Providing and laying rigid insulation (extruded polystyrene blocks) 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) and providing of expansion joint at intervals and filling with sealant in both directions as per the recommendation of manufacturer. The block shall be strong enough to withstand without deformation the workload and standard loads expected on the roof. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints including filling with sealants at suitable intervals etc all complete as per specification for following.	--		
a	Average 50 mm thickness	SQM	2,568	.0054741

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A506	Providing and applying PU based water proofing treatment with elastomeric, seamless waterproof membrane applied in 2 coats to a DFT of 1.2 mm thick having a elongation capacity of over 600% and average tensile strength of 1 MPa, tear resistance as per GBT 19250-2003 >20N/m. The material shall comply with â€œ ASTM C 836 National Std. of Canada 37.58 â€œ M86 by CGSB. All complete as per specifications and directions of engineer in charge.	SQM	2,638	.0047051
B506	Providing and applying a separation layer of non-woven polypropylene geo-textile membrane of 120 gsm for water proofing as per technical specification.	SQM	2,818	.000365
C506	Providing and applying 4 mm thick APP modified Bituminous Polyester membrane for waterproofing manufactured from a rich mixture of bitumen and selected polymers blended together to obtain excellent heat resistant, flexibility, UV resistance etc. Modified bitumen then coated onto a dimensionally stable carrier to obtain excellent tensile strength, tear and puncture resistance etc complete as per technical specification.	SQM	1,490	.0019499
A510	Providing and laying pressed precast concrete tiles of 20 mm thickness and size 600x600 mm conforming to IS 13801 with 15 mm thick 1:4 cement mortar over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/ elastomeric sealant) etc all complete. (Water proofing paid elsewhere)	SQM	2,818	.0039236
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	4,564	.0016379
--	600 JOINTS AND FILLERS	--		
--	Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
601.0	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.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	12 mm wide joints.	SQM	76	.000099
b	20 mm wide joints.	SQM	70	.0001398
c	25 mm wide joints	SQM	71	.0001728
d	50 mm wide joints	SQM	26	.0001199
603.0	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:	--		
a	12mm X 25mm	RM	61	.0000499
b	20mmX25mm	RM	421	.0006498
c	25mmX25mm	RM	62	.0001024
d	50mmX25mm	RM	62	.0001946
604.0	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	34	.0000041
b	12mm X 25mm	RM	34	.0000038
c	20mmX25mm	RM	256	.0000345
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)	--		
a	150 mm wide and 8 mm thick	RM	23	.0000197

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
b	230 mm wide and 8 mm thick	RM	51	.0000658
c	150 mm wide and 6 mm thick	RM	13	.0000085
d	230 mm wide and 6 mm thick	RM	600	.0005861
613.0	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	19	.000006
614.0	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	101	.0000929
--	700 MS EMBEDMENTS	--		
--	Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
701.0	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	17	.0048366
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	5	.0016865
703.0	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading 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	11	.0007826
B	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.	MT	1	.000061

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	400	.0000756
b	PVC pipes / conduits of all diameters	kg	400	.0003875
c	UPVC pipes / conduits of all diameters	kg	400	.0004101
d	Expansion anchor fasteners (galvanised) of HILTI make(HRD Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:	--		
i	8mm Dia	Nos	11	.0000018
ii	10mm Dia	Nos	11	.0000021
iii	12mm Dia	Nos	11	.0000023
iv	14mm Dia	Nos	5	.0000012
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	HST3 M8	Nos	11	.0000042
ii	HST3 M10	Nos	11	.0000061
iii	HST3 M12	Nos	11	.0000097
iv	HST3 M16	Nos	11	.0000173
v	HST3 M20	Nos	11	.0000356

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
vi	HST3 M24	Nos	11	.0000463
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	50	.0000449
ii	HAS-E5.8 M10	Nos	50	.0000528
iii	HAS-E5.8 M12	Nos	60	.0000774
iv	HAS-E5.8 M16	Nos	50	.0001035
v	HAS-E5.8 M20	Nos	10	.0000328
706.0	Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	1	.0000044
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	7	.0013704
--	800 GROUTING	--		
--	Grouting including all labour, material, equipment, roughening surface, cleaning, ramming, curing etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.	--		
ISG 801	Waterproofing for underground concrete structure shall be done by injecting high polymer based non- shrink waterproof grouting compound through nozzle under pressure as per manufacturer's recommendation. The pressure during injection shall not be less than 2.5 kg/Sq.m. Payment shall be made as per the consumption of grout.	KG	10	.0000123
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	100	.005599

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
803.0	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips ) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	8	.0004404
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 CombextraGP-1 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	8	.0010514
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 Combextra GP-2 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	45	.0097807
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	30	.0002107
--	900 DOORS, WINDOWS, VENTILATORS, LOUVERS	--		
--	Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A901	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned hardwood 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	4	.0015861
A902	Providing and fixing teakwood frame panel door with PVC lamination on both sides 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	56	.0005653
A903	Providing, fitting and fixing solid core wooden flush door shutter with PVC lamination on both sides as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldihyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	40	.0002432

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
904.0	Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	104	.0019287
905.0	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	22	.0004206
906.0	Providing and fixing anodized extruded aluminium doors/ windows (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners, SS screws/ fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC/ neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	56	.0000725
A907	Providing and fixing fire proof steel doors (single or double shutter) with panic devices and vision panel shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	38	.0009644

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	87	.0004719
b	fixed type	SQM	162	.000567
A908	Providing and fixing windows/ventilator with M.S. grills as per approved design for security purpose made of 25 mm X 6mm M.S. Flats / 12mm 20mm M.S. square bar of approved design shall be provided to suit security requirements.	Kg	815	.0002925
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door/ window frames, ventillators, partitions, railing, grills etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-mettalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/ stainless steel screws, providing and fixing hinges/ pivots, and making provision for fixing of fitting wherever required including cost of PVC/ neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	3,650	.0045698
A910	Providing and fixing of aluminium composite panel(ACP) 3mm thick fixed in aluminium frame including sealant with minimum 0.2mm topping of precotaed aluminium foil on both side of approved manufacturer & approved shade, all complete as per specification.	SQM	53	.0004222

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
911.0	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :	--		
a	Over head hydraulic door closures	Each	19	.0000778
b	Floor mounted Hydraulic door closers	Each	17	.0001185
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	810	.000306
913.0	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely riveted with stiffening angles.(partly coiled and lath/full lath).	--		
a	Hand Operated	SQM	35	.0002224
b	Mechanically Operated	SQM	148	.0012056
c	Electrically operated	SQM	44	.0003847
914.0	Providing and fixing PVC doors(25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	5	.0000362
A914	Providing and fixing Solid core PVC doors (25 thk double skin) with PVC frame of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	35	.0002633

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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.	--		
a	4 mm thick clear sheet glass	SQM	55	.0002073
b	4 mm thick clear float glass	SQM	106	.0004041
d	6 mm thick wired glass	SQM	501	.002217
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	2	.0000133
f	4 mm thick ground glass	SQM	58	.0002643
g	6 mm thick tinted heat reflecting type float glass	SQM	14	.0000712
h	6 mm thick clear toughened safety glass	SQM	30	.0001761
i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	2	.0000196
A915 m	6 mm thick clear float glass with itching	SQM	30	.0001209
A915n	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick toughened float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	SQM	24	.0002399
ISG 915o	6 mm thick clear float glass	SQM	2	.000008
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	108	.00006

**Part C : Bill of Quantities**

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Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	24	.0001098
ISG 918	Providing and fixing steel windows/ventilator with steel sections with necessary framework as per approved drawings, The window shutters shall be provided with M.S Louvers and 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. - louver blade shall be Z shaped and made out of 18G sheets in E27 steel frames all complete as per the directions of the Engineer in charge. Quoted rate shall be all inclusive.(Glazing shall be paid separately)	--		
a.	Openable type	SQM	20	.0001455
b.	Fixed type	SQM	15	.0001062
A921	Supplying, installing and commissioning of self sliding mechanism for aluminum door (double shutter) including photo operated sensors, fittings, motors, mechanical systems, electrical systems, warranty all inclusive in working condition as per specifications (aluminum and glazing to be paid separately)	NOS	3	.0008474
--	1000 BRICKWORK	--		
--	Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.	--		
A1001	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/cement bricks confirming to IS 12894 with crushing strength of 75 kg/cm2	CUM	439	.0075717

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1002	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/cement bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup>	CUM	1,098	.0229583
A1003	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.	--		
Aa	Using fly ash lime/cement bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup>	SQM	656	.0016409
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 brick on edge.	--		
a	Using fly ash lime/cement bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup>	SQM	4	.0000077
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	17	.0000759
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. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> (including cost of cement for brick making)	CUM	2	.0000349

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**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1008.0	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	7	.0000368
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	2	.0000005
1010.0	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	47	.0001176
1011.0	Providing and filling brick bats in soak pits all complete.	CUM	1	.0000029
--	1100 DAMP PROOF COURSE	--		
--	Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
1101.0	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.	--		
a	40mm thick	SQM	307	.0002278
--	1200 CEMENT MORTAR PLASTER	--		
--	Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1201	Providing 20mm thick plaster in two layers outside the building/rough surface of internal wall in cement mortar 1:4 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete. The two layer include 1:4 cement sand mortar 12mm thick first layer and 1:3 cement sand mortar with 8mm .	SQM	5,802	.0073581
A1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on walls finished to a smooth finish as per specification all complete.	SQM	6,562	.0033111
A1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	2,925	.0014128
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	10	.0000045
1206.0	Providing and making decorative plaster of all types and design on walls, ceilings, arcs, columns with various thickness upto 18 mm including finishing all complete.	SQM	10	.0000144
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	10	.0000009
1208.0	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	10	.0000151
A1208	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	10	.0000015

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1209.0	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	2	.0000009
--	1300 FINISHES TO CONCRETE / PLASTERED SURFACES	--		
--	Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
1303.0	Providing and applying two or more coats of oil bound distemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	20	.0000049
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 as per spec.	SQM	5,974	.0013863
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	2,470	.0008064
A1305	Providing and applying two or more coats of waterproof external quality acrylic emulsion paint similar to Apex Ultima, Weathergurd, Weathershield 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 and technical specification.	SQM	5,308	.0020768
A1307	Providing and applying ready made Epoxy Paint over areas other than steel structure 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	1	.0000005
1311.0	Two or more coats of synthetic enamel paint of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	176	.0000361

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	110	.0000234
1313.0	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 final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	10	.0000108
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	10	.0000026
A1316	Providing and applying 3 mm thick white cement putty punning on walls (Birla White/ JK White or Similar approved) including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	6,716	.0017941
A1322	Providing and applying ready made Acid/Alkali resistant Epoxy Paint over areas other than steel structure 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 250 micron thickness over epoxy primer.	SQM	621	.0009233
--	1400 FLOORING AND SKIRTING	--		
--	Flooring and skirting at any level including base layer, labour, material, equipments, transportation, handling, curing, polishing etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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 paricles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	3,000	.0044765
A1401	Providing and laying 50 mm thick heavy duty patent stone cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 28mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): as per spec.	SQM	5,103	.0076145
A1404	Providing and laying 50 mm thick coloured interlocking M30 concrete tile in paving with approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.	SQM	450	.0008318
1406.0	Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	53	.0002407

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1407.0	Providing and laying polished Kota stone 14mm to 16mm thk in flooring. Under bed shall average 35mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	28	.0001248
1408.0	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	10	.00004
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	56	.0006226
1415.0	Providing and laying polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	56	.0005685
1416.0	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 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	--		
a	7mm thick tiles In flooring	SQM	10	.0000303

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	125	.0004891
b	600X600 mm	SQM	435	.0017137
ISG 1418	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting over 40 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, complete as per specification laid in pattern of following sizes	--		
a	400X400 mm	SQM	1	.000004
b	600X600 mm	SQM	1	.0000042
1423.0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable.	--		
a	20mm thick	SQM	183	.0010261

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1425	Providing and laying polished Marble slabs (Aranga white and Abu green marble or Baroda green & Jaisalmer yellow combination or equivalent approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including moulded marble nosing, pigments, curing, grinding, making corners, granite polishing etc. complete as per spec.	SQM	111	.0007281
1426.0	Providing and laying marble skirting /dado (Aranga white or approved shade/color /design) equivalent of minimum 20mm thickness projecting 6mm from adjacent plaster all complete including underbed 20mm cement mortar 1:3, with thick cement slurry 3.3kg/sqm spread over the surface scaffolding etc. all complete.	SQM	2	.00001
1427.0	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses:	--		
a	5mm thick	SQM	85	.0002172
A1428	Providing and laying flexible electric insulated PVC synthetic sheet as per IS 15652-2006 of Suntex Insulatic Pvt. Ltd. Or similar all complete as per specification.	SQM	551	.0006319
1429.0	Providing and fixing removable type flooring system consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	1	.0000081
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.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	29	.0000034
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	29	.0000074
c	Brass strips 20 mm wide and minimum 4 mm thick.	RM	29	.0000079
A1432	Providing and fixing 10 mm thick high polished decorated colored background first quality digital series dual charged glazed tiles of size 450mmx300 mm for dadoing etc complete as per specification and instruction of engineer in charge.	SQM	150	.0007176
A1433	Providing and laying self levelling epoxy flooring consisting of first coat of solvent free resin based dispersion primer @ 200gm/sqm , first layer of epoxy flooring @4.4kg/sqm of 2mm thickness,second layer of primer@100gm/sqm,final decorative epoxy topping @3.6 Kg/Sqm of approx 2mm thickness complete as per specification. including all material, labour, etc all complete.	SQM	56	.0002499
--	1500 ROOFING / SIDE CLADDING	--		
--	Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm and center to centre of the valley is 130 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 as per spec.	--		
a	Span Upto 1800mm	SQM	1,766	.0060613
b	Span Exceeding 1800mm and upto 2500 mm	SQM	50	.0001716

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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.	--		
a	Span Upto 1800mm	SQM	700	.0026576
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	19	.0010785

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1504	Designing, providing and fixing external sheet of Permanent colour coated metal cladding with troughed M.S. sheets manufactured out of 0.55 mm TCT(Total coated thickness) permanently colour coated zincalume sheet (150 gsm zinc-aluminium alloy coating total of both sides as per AS 1397:1993) having 300 Mpa yield strength. The colour coating shall be comprise of SMP. The colour coating shall comprise of 20 microns finish coat over a 5-micron primer coat on the exposed side and a back coat of 5 microns over a primer coat of 5 micron on the reverse side. The metal cladding shall have 500 mm cover width, 47 mm high crests at 250 mm centers with special male/female side laps and anti siphoning feature to prevent leakage as per spec.	SQM	2,546	.0066157
ISG 1504	Designing, providing and fixing external sheet of Permanent colour coated metal cladding with troughed M.S. sheets manufactured out of 0.55 mm TCT(Total coated thickness) permanently colour coated zincalume sheet (150 gsm zinc-aluminium alloy coating total of both sides as per AS 1397:1993) having 300 Mpa yield strength. The colour coating shall be comprise of SMP. The colour coating shall comprise of 20 microns finish coat over a 5- micron primer coat on the exposed side and a back coat of 5 microns over a primer coat of 5 micron on the reverse side. The metal cladding shall have 500 mm cover width, 47 mm high crests at 250 mm centers with special male/female side laps and anti siphoning feature to prevent leakage as per spec. Including fixing of sheet with the help of concealed compatible interlocking clips and wafer head zinc coated self drilling fasteners. The clips shall be concealed and no fasteners are to penetrate the sheeting.	SQM	7,512	.0214656
A1505	Designing, providing and fixing inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets manufactured out of 0.5 mm TCT(Total coated thickness) permanently colour coated zincalume sheet (150 gsm zinc- aluminium alloy coating total of both sides as per AS 1397:1993) having 550 Mpa yield strength . The colour coating shall be comprise of SMP. The colour coating shall comprise of 20 microns finish coat over a 5-micron primer coat on the exposed side and a back coat of 5 microns over a primer coat of 5 micron on the reverse side. The inner sheet shall have 980 mm cover width, 28 mm high crests at 195 mm centers with special male/female side laps and anti siphoning feature to prevent leakage as per spec.	SQM	25	.0000798

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1509.0	Designing, providing, erection and fixing profiled Internal Cladding sheet manufactured out of 0.6 mm TCT(Total Coated Thickness) of permanently colour coated zincalume steel (150/180 gsm. zinc-aluminium alloy coating mass total of both sides as per AS 1397:1993). The colour coating shall comprise of 20 microns finish coat over a 5 micron primer coat on the exposed side and a back coat of 5 micron over a primer coat of 5 micron on reverse side. The sheet shall have 980 mm cover width, 28mm height crests at 195mm centres with special male/female side laps and anti-siphoning features to prevent leakage. The sheet shall be fixed to the structure by means of self drilling fastners no. 12-24 X 25mm conforms to AS :3566 Class-3 long at valley. Sub- girts of size 50mm X 50mm X 50mm manufactured out of 16G GI (1.6mm GI) 'Z' shape would be fixed the inner sheeting on face side at runner locations all complete as per specification.	--		
a)	For final painting with Silicon Modified Polyester(SMP)	--		
ii)	For zincalume sheet 180gsm. And having 240Mpa yield strength.	SQM	2,496	.0078193
1511.0	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.	--		
a)	For insulation in Sandwitch Cladding	SQM	2,521	.0044012
A1515	Providing and installing minimum 0.05mm thick aluminium foil on exposed surface of under deck insulation. (Cost of insulation shall be paid under separate item).	SQM	350	.0006686
B1515	Providing and installing 50mm thick under deck insulation using closed cell elastomeric nitrile rubber of density 40 to 60 kg/cum fixed at various elevations with rawl plugs including clips etc as per specification.	SQM	350	.0015365
1518.0	Supply & fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, nuts, washers, bitumen washers etc. complete including overlap 100mm .	SQM	1	.0000026

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ISG 1512	Providing & fixing permanently at all heights and elevations, troughed sheets over roof purlins/beams/side runners etc for roofing and side cladding (internal & external) including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge. Quoted rate shall include cost of all labour, material, tools and plants, consumables, lead, lift etc complete.	--		
a	Fixing fire resistant and UV resistant polycarbonate translucent sheets of 2MM thickness on roof & side cladding as per the specification and approved drawings and directions of engineer in charge	SQM	700	.003228
--	1600 FALSE CEILING	--		
--	False ceiling including all labour, material, equipment, transportation, handling, suspension system etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
A1601	Providing and fixing Moisture and fire resistant 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 preparation 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	12.5 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	115	.0002365
b	12.5 mm thick GRG board in profile (dome ,curved profiled etc.) with galvanised light gauge steel load bearing supporting GI frame and finished smooth (seamless).	SQM	5	.0000249

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1603.0	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. ( Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	50	.0002507
A1604	Providing, fixing and laying Acoustic permanently colour coated aluminium false ceiling of approved colour with stove enamel finsih of approved make of either lineal panel system or aluminium tile/plank system with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm 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 75) 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	50	.0007061
A1606	Providing and Fixing CALCIUM Silicate Board/Tiles in false ceiling of HILUX or AEROLITE or equivalent 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.	SQM	46	.000247
--	1700 RAIN WATER DOWN TAKE PIPES	--		<b>SIGNATURE OF BIDDER WITH SEAL</b>

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
--	Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		
1704.0	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	525	.0023643
1705.0	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	120	.0001554
1706.0	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	38	.0000671
1707.0	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.	--		
a	100 mm Dia	RM	391	.0013715
b	150 mm Dia	RM	266	.0013013
c	200 mm Dia	RM	296	.0019904
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	50	.0002206
b	150 mm Dia	RM	98	.0005654
c	200 mm Dia	RM	50	.0004066
1709.0	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	110 mm Dia	RM	29	.0000342
b	160 mm Dia	RM	29	.0000521
c	200 mm Dia	RM	26	.0000688
--	1800 MISCELLANEOUS WORKS	--		
--	Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.	--		
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	2,789	.0140277
1802.0	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	1	.0000074
1803.0	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	1	.0000069
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	62	.0000294
1807.0	Anti termite chemical treatment of soil with Chlorpyrifos/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	2,019	.0007627
A1807	Anti termite chemical treatment of soil with Chlorpyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete.	SQM	25	.0000094

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	5	.0001427
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).	NOS	1	.0000305
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).	No.	1	.000023
1811.0	Construction of below ground earthing system earth electrodes as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items)	No.	1	.0000065
1812.0	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	No.	1	.0000058
1813.0	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	7	.0004928
1814.0	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	1	.0000515
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	201	.000039

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1818.0	Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, surface preparation, curing, staging, compatible paintings etc. all complete.	CUM	1	.0002362
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	1,560	.0018732
1822.0	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	1	.0000217
1824.0	Disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other civil waste, electrical waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as and when directed by BHEL.	--		
a)	Steel scrap / metal scrap	MTÂ	1	.0000018
b)	Debris & Other waste materials.	CUM	1	.0000003
A1837	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	301	.0003436
AA18 37	Providing 25mm 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	1,364	.001244

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1838	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	301	.0003436
A1839	Dismantling old existing reinforced/ non-reinforced brickwork/ blockwork/ stone masonry work in mud/ lime/ cement mortar at any level including clearing/ cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto1km all complete.	CUM	18	.0000928
A1840	Dismantling old existing plain/re-inforced concrete work at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto 1km all complete.	CUM	17	.0000876
A1841	Dismantling old existing structural steel work at any level including plates, bolts, cutting rivets, welding, dismembering and stacking the dismantled materials within a lead upto 1km etc all complete.	MT	10	.0002287
A1842	Providing and fixingÂ sliding layer of bitumen paper or craft paper over the screed layerÂ for water retaining structures to destroy the bond between the screed and the base slab concrete of the water retaining structure etc all complete.	Sqm	57	.0000026
A1843	Providing and Filling in Tanks and other underground structures with crushed stone, screenings of minimum 75 mm layer thickness including breaking of stone boulders to required sizes, filling the interstices with fine gravel, clean sand or similar material mixed in hot asphalt (80 / 100 bitumen or equivalent 8 to 10% by volume) and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	Sqm	1,364	.0014832
--	2000 FENCING AND GATES	--		
--	Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A2003	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 4 mm (including PVC coating ) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 2.5 mm. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	501	.0026239
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 <sup>2</sup> on steel posts.	MT	1	.0003028
2008.0	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	3	.0008419
2009.0	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	6	.0019136
--	2100 WATER SUPPLY	--		
--	Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
2101.0	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	7	.0000144

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
2102.0	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	7	.0000046
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.	EACH	7	.0000077
b	50mm nominal bore.	EACH	7	.0000136
A2104	Providing and fixing Galvanised MS pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with MS 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	13	.0000133
b	20 mm nominal bore.	RM	13	.000015
c	25 mm nominal bore.	RM	13	.0000179
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	13	.0000106
b	20 mm nominal bore.	RM	13	.0000121
c	25 mm nominal bore.	RM	13	.0000149
d	50 mm nominal bore.	RM	13	.0000244

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A2106	Providing and fixing 450X 750 mm high square edge 6 mm thick float glass mirror of adequate width to match toilet lay-out and interior decor and as per spec.	NOS	7	.00002
2107.0	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	NOS	5	.0000094
2108.0	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.	NOS	7	.0000129
2109.0	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	NOS	7	.0000109
2110.0	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	NOS	7	.0000091
2111.0	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	7	.0000124
2112.0	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	NOS	7	.0000072
2113.0	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete.	NOS	5	.0000008
2114.0	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.	--		
a	500 litres capacity	NOS	2	.0000161
b	1000 litres capacity	NOS	5	.0000806
c	2000 litres capacity	NOS	3	.0000967

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of  
Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
d	5000 litres capacity	NOS	1	.0000806
2115.0	Providing and fixing approved stainless steel sink with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete as per spec.	EACH	3	.0000645
--	2200 SANITARY WORKS	--		
--	Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
2201.0	Supply and fixing glazed vitreous china Wash Basin conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.	--		
a	White	EACH	1	.0000093
2202.0	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	6	.0000433
2203.0	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	2	.0000248
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.	--		

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	Floor mounted	EACH	6	.0000803
b	Wall mounted	EACH	6	.000151
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	6	.0000831
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	6	.0001006
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	20	.0000134
b	110mm dia pipes	RM	21	.0000199
c	160mm dia pipes	RM	11	.0000139
d	200mm dia pipes	RM	5	.0000076
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	55	.0000772
b	300mm dia	RM	55	.0001009
c	450mm dia	RM	55	.0002861

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**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
b	600mm dia	RM	55	.0003667
e	900mm dia	RM	55	.0005724
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	55	.0000554
b	250mm dia	RM	55	.0000828
c	300mm dia	RM	55	.0000879
d	500mm dia	RM	55	.0001503
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	10	.0000733
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	10	.0000644
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	6	.0000213
b	150x100mm P or S Type.	EACH	6	.0000222
c	150x150mm P or S Type.	EACH	6	.000024

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	6	.0000196
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	5	.0000159
A2215	Providing and fixing heavy duty UPVC floor traps with C.P jalli all complete.	EACH	1	.0000033
2216.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	6	.0004929
2217.0	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	6	.0006139
2218.0	Providing and fixing white viterous urinal partitions of size 675x325x85mm all complete.	EACH	6	.0000216
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	6	.0003697
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	13	.0000043
b	100 mm dia	RM	13	.0000088
c	150 mm dia	RM	13	.0000179
d	200 mm dia	RM	13	.0000275
--	2300 STRUCTURAL STEEL	--		

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
--	Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.	--		
2301.0	Fabrication and erection of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc., connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. Structural steel shall be supplied by BHEL free of cost for incorporation in permanent work.	MT	1,897	.1484981

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
S2301	Supply including delivery at site, structural steel with mild steel rolled sections, conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052 complete all as per specifications, drawings and as directed by Engineer, from the Customer approved agencies. Note - This item shall be operated if required, at the discretion of BHEL.	MT	50	.0096788
A2302	Extra over ST NO. 2301 for surface preparation by sand blasting in accordance with IS 1477 (part I & II) and applying 2 or more coats of primer of epoxy resin based zinc rich primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, including touch-up painting etc all complete.	MT	1,917	.0273788
A2305	Providing and applying two or more coats of epoxy paint over primer coat so 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	1,917	.028822
2306.0	Providing, laying and clamping of crane rails over the crane girder at all elevations as per IS 3443 including all fixtures, clamps, testings etc. all complete as per drawing and specification.	MT	15	.0037584
2307.0	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	--		
a	Minimum galvanisation of 610 g/sqm	MT	55	.012973

## Part C : Bill of Quantities

### Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project

#### at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
A2308	Supplying, fabrication, erection and alignment of factory made galvanised welded grating units with mild steel conforming to IS:2062 with Minimum galvanisation of 610 gm/sqm in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	46	.0083324
2309.0	Extra over above ST NO. 2301 for finishing the grating units with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces all complete.	MT	2	.0001385
A2309	Extra over above ST NO. 2301 for finishing the grating units with hot dipped galvanisation @ 1000 gm/sqm over blast cleaned steel surfaces all complete.	MT	21	.0023847
AA23 09	Extra over above ST NO. 2308 for finishing the grating units with hot dipped galvanisation @ 1000 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of primer all complete.	MT	10.5	.000465
2311.0	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	KG	1,350	.0002513
2312.0	Providing and fixing in positring of high strength structural bolts (of property class 8.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	KG	950	.0001923
2313.0	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions ( weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	5	.0001253

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
2314.0	Addition to, alterations in and/or modification of	--		
a	In erected position	MT	5	.000321
b	In fabrication yard	MT	5	.0002653
2315.0	Re-erection of dismantled fabricated structural steel members including carriage of modified	MT	4	.0001631
2318.0	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of $\pm 50$ mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
a	20 Tons	EACH	2	.0000777
b	25 Tons	EACH	2	.0000871
c	40 Tons	EACH	1	.0000467
ISG 2318	Providing and fixing in position PTFE type bearings of reputed manufacturer, individual bearing suitable for required loads & rotations as per the construction drawings and for maximum horizontal load of 15 Tons & displacement of $\pm 220$ mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.	--		
c	40 Tons	EACH	2	.0001121
d	50 Tons	EACH	1	.0000617
e	60 Tons	EACH	1	.0000678

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	1	.0008327
A2322	Supply, fabrication and fixing of GI pipe hand railing (1000 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete..	MT	4	.0011951
ISG 2322	Supply, fabrication and fixing of GI pipe hand railing (Max of 1100 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete..	MT	5	.0015685
B2322	Supply, fabrication and fixing of aluminium handrailing with 20 mm square MS bar balustrades with 30x6 MS flats including transporattion, loading/unloading, painting etc. all complete. (Weight of aluminium sections will only be considered for payment purpose). Payment of MS bar balustrades and MS flat shall be made seperately vide from item no. 701.	MT	3	.0035217
2323.0	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	34	.0000831
2324.0	Conducting ultasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	34	.000075
2325.0	Conducting ultasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	30	.00003
2326.0	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	34	.0000632
2327.0	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	31	.00005

**Part C : Bill of Quantities**

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
2600.0	RAIN WATER HARVESTING WELL	--		
2603.0	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm <sup>2</sup> with air vent at top as per the drawing & specification complete.	RM	20	.0000352
2604.0	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm <sup>2</sup> as per drg.	RM	10	.0000155
A2605	Supply & packing uniformly 0.0625mm to 2mm size sand bed in the dug pit surrounding the perforated PVC pipe.	CUM	2	.0000064
A2606	Supply & packing uniformly 20mm thk. Rubber matt at top of dug pit for rain water harvesting.	SQM	10	.0000909
A2607	Supply & packing uniformly downgradedÂ 20mm size Hand Broken Grade Metal (HBG) at all depth in the dug pit for rain water harvesting.	CUM	2	.0000109
B2607	Supply & packing uniformly downgradedÂ 40mm size Hand Broken Grade Metal (HBG) at all depth in the dug pit for rain water harvesting.	CUM	2	.0000109
A2609	Supply & packing uniformly downgradedÂ 90mm-150mm size Hand Broken Grade Metal (HBG) at all depth in the dug pit for rain water harvesting.	CUM	1	.0000055
2610.0	Supply & fixing Netlon jali/ PVT net in the well dug for rain water harvesting.	SQM	10	.0000151
--	2400 ROAD WORKS	--		
--	Providing Road Work including necessary material, labour, machinery, transportation etc as per specification, drawing, relevant IRC & IS codes and as directed by the Engineer-in-charge for the following. (Cement shall be provided by BHEL as free supply)	--		

**Part C : Bill of Quantities**

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Unit 12 at 1x800 MW Kothagudem Power project  
at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
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	3,226	.0004439
2402.0	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including 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 etc all complete.	CUM	1,195	.0007578
2403.0	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	176	.0005024
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, 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	960	.005533
2405.0	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size, stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	741	.0042708
2406.0	Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	5	.0000305
2408.0	Providing & applying tack coat of low viscosity liquid bitumen of grade 80/100 confirming to IS 73, 217 or 454 as applicable @ 6 kg/ 10 sqm for bituminous surface including cleaning with compressed air etc all complete.	SQM	4,000	.0005289

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A2409	Providing, mixing & laying of dense bituminous macadam course of 70mm compacted thickness using bitumen of grade 60/70 conforming to IS 73, aggregates and binder material confirming to Grade-I of MORT-H & specification including hot mixing, hot laying, rolling etc all complete for the following.	SQM	2,064	.0027067
B2409	Providing, mixing & laying of bituminous concrete of 40mm compacted thickness using bitumen of grade 60/70 conforming to IS 73, aggregates and binder material confirming to Table 500-18 of MORT-H & specification including hot mixing, hot laying, rolling etc all complete for the following.	SQM	2,064	.0016429
A2411	Providing and applying 5mm thk mixed seal coat with bitumen comprising of an application of a layer of bituminous binder using medium setting grade bitumen at the rate of 9.8kg/10sqm followed by a cover of medium coarse sand at the rate of 0.06 cum/10sqm including rolling etc all complete.	SQM	2,064	.0005179
A2412	Supplying and laying 450mm long x250mm wide x500mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	210	.0001904
B2412	Supplying and laying precast concrete kerb stone of grade M-25 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	360	.0003264
2413.0	Providing & laying edge protection on both edges of black topping using brick on edge (bricks with crushing strength of 75 kg/cm <sup>2</sup> ) with full brick width (230 mm) etc all complete.	RM	10	.0000038
2414.0	Supply and laying 200mm dia NP3 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	10	.0000143

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:2009 for Civil, structural & architectural works for flue gas desulphurization system of Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A2414	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	1	.0000011
2415.0	Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadam course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete.	SQM	1,010	.0003107
2416.0	Providing 20mm compacted thick premix carpet on existing/damaged road surfaces in a single course composed of suitable small size aggregate premixed with a bituminous binder using medium setting grade bitumen on the existing base including tack coat, cleaning of existing surface, mixing, applying, rolling etc all complete.	SQM	550	.0003562
2418.0	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	90	.000882
2419A	Providing and laying reinforced cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	188	.0020717
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	50	.0004977
2422.0	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	.0003679

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**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A2422	Transportation, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer. (Reinforcement steel shall be provided by BHEL as free supply)	MT	18	.0007505
2423. 0	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	2	.0000092
2424. 0	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	5	.0000007
2425. 0	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc. all complete as per specification, drawing and as directed by Engineer.	RM	15	.0000002
2426. 0	Providing & laying 75 mm thick precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	500	.0014274
A2426	Providing & laying 80 mm thick precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	15	.000045
2427. 0	Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	500	.0003265
2428. 0	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15-2002 Å etc all complete as per specification, drawing and as directed by Engineer.	SQM	500	.0001147
2429. 0	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	25	.0001458

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Unit 12 at 1x800 MW Kothagudem Power project**

**at Kothagudem Stage VII Unit 12, 1 X 800 MW**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
12.0	Providing and laying 225mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	1,445	.0103325
<b>TOTAL Weightage</b>			1.0	