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TENDER NO. BHEL: NR(SCT):KOSTI:CIVIL(5):419

TENDER SPECIFICATIONS

FOR

**CIVIL, STRUCTURAL & ARCHITECTURAL WORKS OF
BUILDINGS, FOUNDATIONS & STRUCTURES FOR MAIN
POWER BLOCK FOR 4 X 125 MW POWER PLANT IN
KOSTI, SUDAN.**

PART II – PRICE BID



**Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)**



ISO 9001-2000, ISO 14001
and OHSAS 18001 certified
company
SubContract and Purchase
Deptt.

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northren Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)
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TENDER NO. BHEL: NR(SCT): KOSTI:CIVIL(5):419

IMPORTANT NOTE

PURCHASER OF THIS TENDER DOCUMENT IS ADVISED TO CHECK AND ENSURE COMPLETION OF ALL PAGES OF TENDER DOCUMENT AND REPORT ANY DISCREPANCY TIMELY FOR CORRECTIVE ACTION, IF ANY, TO THE ISSUING AUTHORITY BEFORE THE BIDS ARE SUBMITTED. ORIGINAL COPY/ DOWNLOADED COPY OF TENDER DOCUMENT COMPLETE IN ALL RESPECTS MUST BE SUBMITTED BACK (DULY SIGNED AND STAMPED) AS PART OF THE BID WITHOUT WHICH THE SAME IS LIABLE TO BE REJECTED BY BHEL.

THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northren Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)

PROCEDURE FOR SUBMISSION OF SEALED TENDERS:

The tenderers must submit their tenders as required in two parts in separate sealed covers prominently superscribed as Part-I Technical bid and Part-II ,Price bid also indicating on each of the cover tender specification no., date and time as mentioned in tender notice.

TECHNICAL BID (COVER-I)

Except Price bid Part-II, complete set of tender document consisting of General conditions of Contract, “Technical specifications & Special terms and conditions” (Part-I) issued by BHEL/ downloaded from BHEL website shall be enclosed in Part I Technical Bid only. All schedules, data sheets and details called for in the specification shall also be submitted along with technical bid. All details / Data / Schedules including offer letter duly signed and stamped are to be submitted in duplicate.

PRICE BID (COVER-II)

Tenderers may please note that price bid is to be submitted only in original copy of Tender i.e. Price bid (Part-II) issued by BHEL/ downloaded from BHEL website.

These Two separate covers i.e. cover I & II shall together be enclosed in a third envelope (Cover-III) and this sealed cover shall be superscribed with tender specification No., due date, time and submitted to officer inviting tender as indicated in tender notice on or before due date as indicated.

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
100	EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION AND DRAWINGS				
101	Excavation including providing coffer dams, shoring, strutting, sheeting, bracing, draining and pumping out water other than water below ground water table, clearing all grass, vegetation etc. including trimming of excavation bottom, staking, levelling, grading etc. of excavated materials all complete as per specifications, drawings and instructions of the engineer, including a lead(disposal) up to 100 meters and a lift up to 2.0 meters.				
i)	In all types of soils including expansive soil, ash, morrum, laterite	CUM	69600		
102	Extra over item 101 above, for all types of soil/rock (soft rocks only, requiring no chiselling / blasting), for additional lifts beyond the initial lift of 2 meters (included in item 1 above) all complete as per specifications, drawings and instructions of the engineer for the following lifts:				
i)	In all types of soils				
a	beyond 2 m and upto 4 m	CUM	37000		
b	beyond 4 m and upto 7 m	CUM	5100		
c	beyond 7 m and upto 10 m	CUM	500		
d	beyond 10 m and upto 15 m	CUM			
103	Extra over item 101 above for excavation below ground water table including lowering of ground water table to maintain dry working conditions for all activities up to filling/testing all complete as per specifications, drawings and instructions of the engineer. However dry working conditions will have to be maintained till completion of all works in excavated area	CUM	1000		
104	Extra over item 101 above for carriage of all types of excavated materails beyond the initial lead of 100 m (included in item 1 above) all complete as per specifications, drawings and instructions of the engineer for the following leads				
i)	Carriage beyond initial lead of 100 m but not exceeding 500 m	CUM	15500		
ii)	Carriage beyond initial lead of 500 m but not exceeding 2 Km	CUM	17500		
iii)	Carriage beyond initial lead of 2 Km but not exceeding 5 Km	CUM	15600		

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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
iv)	Carriage beyond initial lead of 5 Km but not exceeding 10 Km	CUM	10000		
105	BACKFilling using selected excavated materials in trenches, plinths, foundations and other underground structures, pipes, etc. in layers not exceeding 200 mm thickness including re-excavation and loading from stock pile, transporting (from a lead upto 1 KM), unloading, filling, watering and compacting/ramming each layer to required degree as mentioned below for all leads and lifts all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	Minimum 85% Standard Proctor density	CUM	1000		
ii)	Minimum 90% Standard Proctor density	CUM	1000		
iii)	Minimum 95% Standard Proctor density	CUM	5000		
105A	BACKFilling using selected excavated materials directly from <u>excavation area</u> in trenches, plinths, foundations and other underground structures, pipes, etc. in layers not exceeding 200 mm thickness including filling, watering and compacting/ramming each layer to required degree as mentioned below for all leads and lifts etc all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	Minimum 85% Standard Proctor density	CUM	500		
ii)	Minimum 90% Standard Proctor density	CUM	1000		
iii)	Minimum 95% Standard Proctor density	CUM	2500		
106	BACKFilling in trenches, plinths, foundations, and other underground structures, pipes etc using selected soil from borrow areas in layers not exceeding 200 mm in thickness and including excavating, loading, unloading, transporting, filling, watering and compacting/ramming each layer to required degree for all lead and lifts etc all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	With selected soil non expansive soil brought from borow areas arranged by contractor including royalties, fees if any etc.				
a	Minimum 90% Standard Proctor density	CUM	1500		
b	Minimum 95% Standard Proctor density	CUM	49000		

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ii)	With selected sand brought from quarries/river bed arranged by contractor including royalties, fees if any and compacting to minimum 80% relative density etc.	CUM	500		
106A	Filling using selected materials from borrow areas below foundations and other under ground structures, pipes etc. in layers not exceeding 200 mm in thickness including excavating, loading, unloading, transporting, filling, watering and compacting/ramming each layer etc for all leads and lifts all complete as per specifications, drawings and as directed by the engineer for the following . With selected non expansive soil brought from borow areas arranged by contractor, including royalties, fees etc. if any compacted to 100% Standard Proctor Density	CUM	7080		
107	Filling in trenches, plinths, area paving and other underground structures with stone (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer-in-charge.	CUM	2560		
108	Filling in transformer pits etc. , with clean 40 mm nominal size stone aggregate including all labour, materials, royalties, equipments etc. complete as per instructions of engineer in charge.	CUM	700		
	GRADING & LEVELLING				
111	Earth work in stripping of top soil upto a minimum depth of 0.20m below ground level so as to exclude all debris, grass, vegetation, bushes, trees including roots and organic materials etc for levelling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means including stacking/ disposal of stripped materials/earth, debris, vegetation, bushes, trees etc within a lead of 1km etc all complete as per specification and as directed by the engineer.	SQM	1500		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
116	Providing, stacking and laying 300mm thick boulder pitching on the slopes of earth fill/cut with approved quality of rock fragments including necessary excavation (if any) compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	50		
117	Providing anti termite treatment under floors etc. as per specifications.	SQM	600		
200	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) COMPLETE AS PER DRAWING AND SPECIFICATIONS UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING: (IN CASE OF UNDERGROUND WATER AGRESSIVENES, SPECIAL CORRESPONDING CEMENT TO BE USED)				
201	Concrete of grade M7.5 as filling course at any level below finished floor level, under and around foundations/floors, mass dumps etc with 40 mm nominal size graded aggregate.	CUM	50		
202	Concrete of grade M10 as levelling course , under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	100		
202 A	Concrete of grade M15 as levelling course , under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	1380		
203	Concrete of grade M20 in foundations, under floors etc complete with 20 mm nominal size graded aggregate.	CUM	100		
203A	Concrete of grade M20 (1 part cement, 2 part sand, 4 parts of 12.5 mm graded aggregate by volume) as under bed to floors etc complete.	CUM	50		
204	Concrete of grade M-25 in foundations, under floors etc complete with 20 mm nominal size graded aggregate.	CUM	10500		
205	Concrete of grade M-25 in superstructure from finished floor level complete at all heights with 20 mm nominal size graded aggregate	CUM	4500		

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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
206	Concrete of grade M-25 in T.G. Block and machine foundations at all heights from finished floor level except top deck 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.	CUM	3200		
207	Concrete of grade M-25 in top deck of machine foundations 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.	CUM	1600		
208	Screed concrete 1:2:4 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 complete.	CUM	100		
209	Concrete of grade M-25 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 adjusant preacast units with M30 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).	CUM	100		
210	Concrete of grade M25 in foundation, superstructure of water retaining structures either below or above finished floor level including addition of suitable plastisizer confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and subsequent reduction in cement content upto a maximum 10% complete etc. as per specification with 20 mm nominal size graded aggregate.	CUM	250		
211	Concrete of Grade M-20 in paving, plinth protection, pipe encasing etc. complete with 20 mm nominal size graded aggregate.	CUM	10		

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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
212	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.				
i)	Plain cement concrete of all grades	CUM	5		
ii)	Reinforced cement concrete of all grades	CUM	5		
213	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 etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement	CUDM	50		
214	Extra over and above St No 213 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.	SQM	25		
214 A	Providing and laying 50mm thick lime powder below earth fill complete as per specifications	SQM	5500		
215	Providing and adding of ice of approved quality in concrete to maintain concrete tenmprature below 23 degree centigrade	CUM	150		
300	SUPPLYING, 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. FOR THE FOLLOWING:				
301	Ordinary form work below finished ground floor level for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	19615		

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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
302	Fairface form work below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. for exposed concrete works.	SQM	1500		
303	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	500		
304	Fairface 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	30000		
305	Formwork for TG superstructure-fairface. (above finished floor level)	SQM	5100		
306	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm contact surface area with concrete) 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.				
i)	Upto 300 mm depth	Nos.	50		
ii)	From 301 mm upto 600 mm depth	Nos.	15		
iii)	From 601 mm upto 1000 mm depth	Nos.	15		
400	REINFORCEMENTS				
401	Providing, straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in concrete including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	47		

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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
402	Providing, straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in concrete including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	1975		
403	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 etc. complete all as per specifications & drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	25		
404	Providing, straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in brickwork including cost of reinforcement and binding wire, labour etc. complete all as per specifications & drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	10		
500	WATER PROOFING AS PER SPECIFICATIONS. (Contractor has to furnish a guarantee for material and workmanship for a minimum period of 20 years.)				
501	Providing and laying roof water treatment with high solid content liquid applied elastomeric water proofing membrane with separate wearing course as per ASTM C-898 . Thickness of membrane shall be min 1.5 mm. Treatment shall include application of polymerized mastic over roof achieving a smooth surface. Wearing course on the top of membrane shall consist of 25 mm thick PCC (1:2:4) cast in panels of maximum size 1.2 X 1.2 m and reinforced with 0.56 mm dia galvanised chicken wire mesh and sealing of joints using sealing compound / elastomeric water proofing membrane complete complete as directed by engineer in charge.	SQM	9520		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
502	Providing and laying chequered concrete tiles over water proofing of minimum size 200 X 200 and minimum thickness 22 mm confirming to IS 13801 including 15 mm thick cement mortar (1:4) bedding. (water proofing paid else where)	SQM	600		
502A	Providing and laying foam concrete block insulation over roofs including minimum 15 mm cement sand plaster finished smooth over foam concrete and providing of expansion joints at intervals as per the recommendation of manufacturer. Thermal conductivity of the foam concrete shall not exceed 0.125 KCL/Sqmh degree C and weight shall be from 0.3 to 0.5 gm/cu.cm, all complete with fillets as per specification.				
a	75 mm thick	SQM	6700		
b	100 mm thick	SQM	2500		
503	Providing minimum two coats of bituminous paint on concrete surfaces in contact with soil in water retaining structures, of grade 85/25 conforming to IS: 702 @ 1.7 kg/sqm.	SQM	100		
504	Providing and mixing approved water proofing compound in concrete or cement mortar for works wherever specified or directed as per specification/manufacturer's instructions, testing of samples for water proofing etc. complete.	KG	500		
600	SUPPLYING & INSTALLATION OF JOINT FILLER AND SEALING COMPOUND:				
601	Supplying & installation of bitumin 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, labour, material, equipments etc all complete at all levels as per specification, drawings and instruction of engineer in charge:				
a	12mm thick joints.	SQM	25		
b	20mm thick joints.	SQM	15		
c	25mm thick joints.	SQM	25		
d	50mm thick joints.	SQM			

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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
602	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 at all levels including application of primer, labour, material, equipments etc. all complete as per specification/drawing, instruction of engineer in charge.	Kg	50		
700	M.S. EMBEDMENTS				
701	Supply, fabricating and fixing of embedments, MS inserts, pipe sleeves, guide rails, angle pieces, foundation bolts, anchor bolts, rungs of various diameters, plates of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, rivetting, bolting, cutting, drilling, scaffolding and setting as per specifications and drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	20		
702	Fixing of embedments, MS inserts, pipe sleeves, rails, guide rails angle pieces, anchor bolts of various diameters, plates of dimensions as required including cost of all labour, materials and equipment for fixing in position, scaffolding and setting in position, transportation from stores within the plant boundary to work spot, loading, unloading etc. complete as per specifications and drawings. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	15		
703	Providing, fabricating, transporting, erecting and installing at all elevations miscellaneous steel/PVC pipes, expansion fasteners in concrete/brickwall, for all kind of works, including the cost of labour, material and equipment, setting material in concrete, layout, scaffolding, handling at site, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete as per drawings and specifications and instructions of engineer.				
i	MS pipes of all diameters	Quintal	25		
ii	PVC conduits of all sizes	Quintal	5		
iii	Expansion fasteners (galvanised) of HILTI make or equivalent of safe tension capacity as specified below:				

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ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
	250 kg	Each	150		
	500 kg	Each	150		
	750 kg	Each	150		
704	Supply, fabrication, transportation, delivery at site, erection, installation and allignment of MS foundation bolt (Grade-1 of IS:432 & IS:2062) assembly in concrete along with nuts, lock nuts (IS:1363, IS:1364 & IS:3138), anchor plates, stiffner plates, protective tape etc. upto and including 80 mm dia, 3000 mm long including furnishing of labour, materials, equipments, welding, cutting, grinding, threading, drilling, pipe sleeves etc. all complete as per specification, drawing and instruction of the engineer.	MT	17		
800	GROUTING AS PER SPECIFICATION FOR THE FOLLOWING:				
801	Providing & grouting cement slurry mix at any elevation/depth with pressure pump for water retaining concrete structures, including fixing nozzles, cost of approved cement, admixture, curing, etc all complete as per specification and as directed by the Engineer.	SQM	2		
802	Providing and grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1:2 (one part Cement : 1part Sand : 2 parts of 6mm down graded stone chips) at any elevation including roughening surface, cleaning, ramming, curing etccomplete (non-shrink hand grout using approved admixture) as per specification and as directed by the Engineer.	CUM	13		
803	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1(1 part cement : 1part sand) at any elevation including roughening surface, cleaning, ramming, curing etc complete (non-shrink flowable grout as per specification using approved admixture) as per specification and as directed by the Engineer.	CUM	10		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
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804	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment if necessary, structural steel work, machinery at any elevations including roughening surface, cleaning, ramming, curing, etcwith CobextraGP-2/CobextraGP-1/Pidigrout10/Pagel or equivalent all complete as per specifications. (Cost of all material and clearing the pocket by compressed air shall be in the scope of the contractor).	CUM	5		
900	DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTIONS ETC. COMPLETE AT ALL ELEVATION INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION AND DRAWINGS (all steel doors, windows and rolling shutters etc.shall be blast cleaned to near white metal surface (Sa 2 1/2), painted with two coat of red oxide zinc primer and finished with two coats of synthetic enamel paint confirming to IS2074)				
901	Providing, fitting and fixing solid core flush door shutter as per IS2202 part II, 35 mm thick homogeneous particle board (decorative veneer prelaminated on both sides) bonded with BWP type phenol formaldehyde synthetic resin, particle board core conforming to IS3087 type I, 35/12 mm thick teak wood beading all around including preperation of working drawings, butt hinges, tower bolt, sliding bolt handles, knobs, door stoppers (all fitting shall be anodised aluminium color dyed), screws etc complete as per drawing, specification and instructions of engineer in charge.	SQM	70		
901A	Providing and fixing 12 mm thick particle board , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading (excluding the cost of aluminium works).	SQM	12		
902	Providing and fixing openable/fixe steel windows and ventilators with steel sections as per IS:1361 including wire mesh, painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	2536		

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903	Providing and fixing steel single or double door shutters. Shutters 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 side, top, bottom edges of shutter shall be of pressed steel channels of 1.2mm thk voids to be filled with mineral wool (48 kg/cum density) including all fittings like tower bolts, handles, stoppers, aldrops etc. and painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	175		
904	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	115		
905	Providing and fixing anodised aluminium work for doors, windows, ventilators and partitions 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, screws or with fixing clips, including necessary fillinf of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-mettalic protection etc.	KG	6500		

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905	including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, 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).				
906	Providing and fixing of over head hydraulic door closers of approved make & quality as directed by Engineer.	Nos	30		
907	Providing and fixing floor mounted Hydraulic door closer of approved make & quality as directed by engineer	Nos	10		
908	Providing and fixing pressed steel frames fabricated from 1.6 mm thk gauge M.S sheet mortised, reinforced strikes, hold fasts, adjustable floor anchors, floor tiles/weather bars etc. complete as per specifications.	KG	9500		
909	Providing and fixing in position rolling shutters of approved make as per IS 6248, made of 80x1.25mm M.S laths 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, 3coats of approved enamel paint etc., all complete as per specification- Mechanically operated.	SQM	20		
910	Providing and fixing in position rolling shutters of approved make as per IS 6248, made of 80x1.25mm M.S laths 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, 3coats of approved enamel paint etc., all complete as per specification- Hand operated.	SQM	10		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
911	Providing and fixing in position rolling shutters of approved make as per IS 6248, made of 80x1.25mm M.S laths 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, 3 coats of approved enamel paint etc., all complete as per specification- Electrically operated.	SQM	180		
912	Providing, fabricating and fixing in position window grills as per approved design pattern at all elevations and of all sizes including with or without openings for operating window handles with all labour, material. Handling, equipment complete etc as per specification, drawing and instructions of engineer in charge.				
i)	Made of anodised aluminium sections	Kg	400		
913	Providing, fitting and fixing of glazing including poly carbonate sheet of superior (selected) quality, first grade class, at various elevations, where required, cleaning after fixing, with all labour and material etc. complete as per specification, drawing and instructions of engineer in charge.				
i)	4 mm clear sheet glass	SQM	100		
ii)	4 mm clear float glass	SQM	100		
iii)	5.5 mm clear float glass	SQM	2000		
iv)	6 mm wired glass	SQM	500		
v)	6 mm thick polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	40		
vi)	5.5 mm tinted glass	SQM	5		
vii)	Two nos. 6 mm thick clear toughened safety glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation.	SQM	250		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
914	Providing, fitting and fixing heavy duty minimum six lever mortised lock of godrej or equivalent make with handles or knobs to single and double leaf door (wooden/steel/aluminium) with duplicate set of keys and masterkeyed locks, openable from one side by the key and from the other side by the handle etc. all complete as per drawing, specification and instruction of engineer in charge.	Each	75		
915	Providing and fixing PVC doors of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	50		
916	Providing and fixing in position of 25 mm wide aluminum Venetian blinds of approved shade with aluminum extruded duly epoxy powder coated top channel including mechanism etc complete as per specifications, drawing and instruction of engineer in charge	SQM	300		
1000A	BLOCK WORKS MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, SCAFFOLDING ETC. COMPLETE AS PER SPECIFICATIONS, DRAWING AND AS DIRECTED BY ENGINEER FOR THE FOLLOWING:-				
1003A	Providing and laying 200mm thick block work in cement mortar 1:6 (1cement : 6 coarse sand) consisting of 200mm hollow concrete block for walls, chambers etc. at all heights, places and position above plinth including raking out joints, curing, scaffolding, etc complete but excluding plastering and painting, having compressive strength of 10N/mm2 manufactured as per approved methodolgy and as per specification.	CUM	100		
1004A	Providing and laying 150mm thick block work in cement mortar 1:6 (1cement : 6 coarse sand) consisting of 150mm hollow concrete block for walls, chambers etc. at all heights, places and position above plinth including raking out joints, curing, scaffolding, etc complete but excluding plastering and painting, having compressive strength of 10N/mm2 manufactured as per approved methodolgy and as per specification.	CUM	25		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1005A	Providing and laying Hollow glass block work of approved quality using suitable binding material as per manufacturers instructions including reinforcing the joints and filling the connections with adjacent concrete block work with fibrous/plastic non load bearing substance etc all complete as per specification.	CUM	10		
1007A	Dismantling existing block work at all level including stacking and removing the debris within a lead of 1Km. , including transportation, loading, unloading, etc all complete and as directed by Engineer.	CUM	5		
1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR ETC. COMPLETE, AS PER SPECIFICATIONS. CONTRACTOR WILL HAVE TO SET UP A BRICK MANUFACTURING UNIT OF CAPACITY SUITABLE FOR ALL BRICKWORK ACTIVITIES OF THE ENTIRE PACKAGE. THE UNIT SHALL BE SET UP AS PER SPECIFICATION. LOCALLY AVAILABLE BRICKS CAN BE USED PROVIDED THESE MEET THE STRENGTH / STABILITY PROPERTIES REQUIRED AS PER RELEVANT IS CODES AND CLASS DESIGNATION				
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
i)	Using ordinary bricks of class designation 7.5 of nominal dimension	CUM	100		
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
i)	Using ordinary bricks of class designation 7.5 of nominal dimension	CUM	5000		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1005	Providing brick soling spreading of earth, ramming, watering including 12mm 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.				
i)	Using ordinary bricks of class designation 7.5 of nominal dimension	SQM	900		
1006	Providing brick soling including spreading of earth, ramming, watering including 12mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.).- Using flat bricks.				
i)	Using ordinary bricks of class designation 7.5 of nominal dimension	SQM	10		
1008	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	5		
1009	Breaking of existing brick partition wall at all levels including plastering, cutting of reinforcement, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	SQM	5		
1010	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 checken wire mesh with 50mm lap etc. complete as per specification.	CUM	10		
1012	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	10		
1013	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	50		

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1014	Providing and filling brick bats in soak pits.	CUM	2		
1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC., COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS.				
1101	Damp Proof Course 50mm thk. 1:1.5:3 concrete (10mm down aggregate) with 2% of approved admixture of water proofing compound. Hot bitumen @ 1.7Kg./sqm shall be applied before & after the DPC as per specification.	SQM	200		
1200	CEMENT MORTAR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC. COMPLETE AS PER SPECIFICATION				
1201	Providing 12 mm thick plaster in cement mortar 1:6 on walls, finished to a smooth finish as per specification and conforming to IS 1661	SQM	25000		
1202	Providing 12 mm thick plaster in cement mortar 1:6 on walls, with a rough finish as per specification and conforming to IS 1661	SQM	215		
1203	Providing 12 mm thick plaster in cement mortar 1:6 on walls with a paste of neat cement @1kg/sqm and rubbed smooth with trowel as per specification and conforming to IS 1661	SQM	100		
1204	Providing 18 mm thick plaster in two layers in cement mortar 1:6 on walls finished to a wooden float/smooth/rough finish as per specification and conforming to IS 1661	SQM	24900		
1205	Providing 6mm thick plaster in cement mortar 1:4 on ceilings finished to a smooth finish as per specification.	SQM	17600		
1206	Providing and making decorative plaster (cement plaster, ratio 1: 6 mortar) over existing plastered surface of all types and design on walls, ceilings, arcs, columns with various thickness upto 20 mm including finishing all complete .	SQM	100		
1207	Providing Plaster of Paris 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	SQM	8000		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1208	Providing screed/grading plaster of average 20 mm thickness in ratio 1:6 nominal by volume including finishing smooth and even etc. all complete at all levels above or below grade level.	SQM	1000		
1208-1	Providing and making decorative interior plaster of heritage finish over existing plastered surface of all types and design on walls, ceilings, arcs, columns including finishing all complete.	SQM	10		
1208-2	Forming groove of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	25		
1208-3	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	50		
1209	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over galvanised hexagonal chicken wire of 0.9 mm wire diameter and 19 mm mesh size as per IS3150 including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (rate shall include the cost of GI chicken wire mesh)	SQM	25		
1300	FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC. ALL COMPLETE				

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1301	Two or more coats of exterior masonry paint (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and finest available pigment. The paint shall be applied on a coat of primer over dried, prepared plaster surface as manufacturers guidlines. The final finished coating shall be fungus resistant, UV resistant, water repellent, alkali resistant and extremely durable with color fastness as per specification.	SQM	50		
1302	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	16000		
1303	Providing and applying two or more coats of oil bound distemper as per IS 428 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline including plaster of paris punning minimum 2 mm.	SQM	8000		
1304	Two or more coats of dry distempering of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	8000		
1305	Two or more coats of cement paint (for internal use) of approved brand and manufacture to give an even shade including priming coat complete.	SQM	500		
1306	Providing and applying 2 or more coats of acid/alkali resistant chlorinated rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer conforming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	250		
1307	Two or more coats of flat oil paint as per IS: 137 or fire resistant transparent paint as per IS: 162 over french polish as per IS: 348 on all woodwork as per specifications.	SQM	25		
1308	Two or more coats of oil resistant paints epoxy based and ammine cured, 150 micron over primer of approved grade and manufacture to give an even shade.	SQM	200		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1309	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 including plaster of paris punning minimum 2 mm.	SQM	12500		
1312	Providing and applying 2 or more coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	SQM	25000		
1400	FLOORING AND SKIRTING INCLUDING ALL MATERIALS, LABOUR, CURING, POLISHING, FINISHING, EXPANSION JOINTS, GROOVES, ETC. COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS AND DESCRIBED IN SPECIFICATIONS. (Under bed to be paid seperately under relevant item)				
1401	Providing and laying 40 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 12 mm thick uniform graded treated iron particles in flooring complete as per specification.	SQM	20750		
1402	Providing and laying 25 mm thick heavy duty cement concrete flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado complete as per specification.	SQM	400		
1404	Providing and Laying Precast Terrazo tiles including preparation of underbed all complete as per specifications	SQM	1800		
1406	Providing and laying removable false flooring with fire resistant particle board panels bonded by phenol formaldehyde of size 610X610 mm with all panel edges finished to a tolerance of +- 0.2 mm including 2 mm thick non static PVC top and lipping, supporting arrangement as per specification, drawings and engineer in charge.	SQM	1600		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1407	Providing & fixing chemical resistant (Acid & Alkali) Tiles as per IS 4860 of minimum thickness 40 mm thick in flooring/Dado . The tiles shall be abrasion resistant and durable. The potassium silicate 6 mm thick mortar as per IS 4832 used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic as per IS 9510 and IS 412 complete as per specification.	SQM	500		
1408	Providing & fixing chemical resistant (Acid & Alkali) Tiles as per IS 4457 of minimum thickness 20 mm thick in flooring/Dado . The tiles shall be abrasion resistant and durable. The potassium silicate as per IS 4832,6 mm thick mortar used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic complete as per IS 9510 and IS 412 and as per specification.	SQM	100		
1410	Providing & fixing chemical resistant (Acid & Alkali) bricks (115 mm thk) as per IS 4860 in the walls of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bitumuinastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing (epoxy/furane/CNSL) and acid curing shall be done complete as per specification.	SQM	20		
1411	Providing epoxy coating 150 micron over epoxy primer over MS Grating/Chequered plate/any other steel structure complete as per engineer in charge.	SQM	25		
1411A	Providing epoxy coating on operatinf floor as per spec.	SQM	25		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1412	Providing and laying polished Kota stone 20 mm thk in flooring . The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. complete.	SQM	750		
1413	Providing polished Kota stone 20 mm thk in skirting projecting 6mm from adjacent plaster all complete .	SQM	10		
1414	Providing and laying polished Granite stone of approved color and texture 25 mm thk and 600x600 size in flooring with brass dividers of 30x6 mm size at 1.8mx 1.8m intervals. The granite stone slabs/tiles laid over under bed of cement sand mortar (1:3) 15mm thick, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. complete .	SQM	900		
1415	Providing and laying polished Granite stone 20 thk in skirting, facia and dado including pigments, curing, grinding, granite polishing etc. complete.	SQM	75		
1416	Providing and laying 7 mm thk vitriified ceramic tiles of polished variety of size 300x300 from reputed manufacturer, complete as per specification.	SQM	700		
1417	Providing and laying 7 mm thk vitriified ceramic tiles of unpolished variety of size 300x300 from reputed manufacturer, complete as per specification.	SQM	200		
1418	Providing and laying 7 mm thk vitriified ceramic tiles of polished variety of size 300x300 from reputed manufacturer, for skirting and dado up to specified height complete as per specification.	SQM	50		
1419 A	Providing and fixing white glazed tiles from reputed manufacturer all complete as per specifications	SQM	550		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1420	Providing and laying granite stone slab of 12mm thickness single piece for wash basin slab, wall of black or approved colour with cutting and opening complete.	SQM	25		
1421	Providing and laying Heavy Duty dust pressed Ceramic Tiles in floors of size 300x300x7mm thick of reputed manufacturer of approved finish shade and colour.	SQM	100		
1422	Providing and laying colored Ceramic Tiles 5mm thick in dado of reputed manufacturer of approved finish shade and colour.	SQM	150		
1423	Providing and laying 40 mm thick heavy duty cement concrete flooring with cement concrete mix 1:2:4 (1 part cement, 2 parts sand and 4 parts stone chips 12.5 mm well graded) with required finish as per specification, drawing and instructions of engineer in charge.	SQM	1500		
1425	Providing and laying of PVC flooring & skirting of minimum thickness 2 mm anti static flexible tiles as per IS 3462 and IS 5318.	SQM	800		
1427	Providing and laying cinder filling in the toilets complete as directed by engineer in charge.	CUM	40		
1428	Providing and laying precast mosaic tiles 20 mm thick of approved shade with marble chips of sizes upto 6 mm laid in floors, skirtings and landings, jointed with neat cement slurry with pigment to match the shade of tiles including rubbing and polishing complete.	SQM	250		
1429	Providing and laying 12 mm thick cast in situ terrazo finish consisting of marble chips of size 1 mm to 12 mm nominal size laid in white/grey cement or mixture of both in propotion 1:1.5 (1 part cement, 1.5 parts chips) with marble powder 3:1 (3 parts cement, 1 part marble powder) in propotion mix dry in cement including pigments, rubbing, grinding, polishing etc in floors, skirtings, treads, risers and landings complete.	SQM	150		
1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.				
i)	Glass strips 40 mm wide and minimum 6 mm thick.	RM	45		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
ii)	Aluminium strips 40 mm wide and min 3 mm thick	RM	45		
1500	PROVIDING AND ERECTING ROOFING/SIDE CLADDING INCLUDING LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC. COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC. COMPLETE FOR THE FOLLOWING:				
1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate over roof purlins as per relevant IS code and specification. Thickness of deck plate shall be minimum 1.2mm (base metal excluding coating), with minimum trough depth of 38 mm, with minimum yeild strength of 240Mpa and shall serve as permanent shuttering to the cast-in-situ roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads during construction spanning between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc.complete as per engineers approval and specification. (height of trough required as per design should be included in the cost). M.S. Trough decking plate shall be connected to the top surface of the purlin, top chord of truss with self tapping self drilling white zinc plated heat treated high carbon steel screws of	SQM	6000		
	min 5.6mm diameter at spacing of 390mm C/c in the trough and sealing it with epoxy sealent including all material, labour, tools, etc complete. In addition shear connector of 16mm dia and min 75mm long mild steel studs at spacing 520mm C/c shall be fixed on top cord of purlin passing through the metal decking. (Note:-Leak proofing of the metal decking and concrete system shall be demonstrated by the contractor). Measurement shall be of the plan area of roof covered by MS trough metal decking. (Fabrication / erection of purlins is excluded from the scope of this item)				

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1504	Design supply & erection of permanent colour coated non insulated metal cladding for external walls with troughed galvanized MS sheeting of 0.6mm thickness and 275 g/sqm of galvanization or Hi tensile steel (350 Mpa) 0.5 mm thick, coated with zinc aluminium alloy @ 150 g/sqm. Outer exposed face shall have PVF2 coating of DFT 20 microns over primer having life span sustenance against weathering action, inner side shall be coated with same paint of minimum DFT 12 microns over primer. Cladding shall be fixed to supports/rails by concealed fixing system with corrosion resistant self tapping/self drilling type fasteners provided with suitable cap. Flashing shall have the same material and minimum overlap of 100 mm.	SQM	1887		
1505	Providing and installing under deck insulation comprising of 50 thick resin bonded mineral wool insulation mat conforming to IS: 8183. This mat shall be backed with minimum 0.05 mm thick aluminium foil and 24Gx25 mm wire mesh netting. This shall be fixed to ceiling or wall as the case may be with 100x50x6 slotted mild steel plaie welded to MS plate inserts embedded at the soffit of the slab at 600 mm c/c and 14 G steel wire drawn through slots and fixed to wire nettingas per specification, drawing and instructions of engineer in charge.	SQM	500		
1506	Proving and fixing Corrugated GI sheet as cladding/roofing as per IS 277 and minimum grade of galvanisation shall be 450 gm/sqm including all fixing accessories, labour, material, scaffolding etc all complete as per specification, drawing and instructions of engineer in charge.	MT	5		
1507	Proving and fixing profiled aluminium sheet as cladding including all fixing accessories, labour, material, scaffolding etc all complete as per specification, drawing and instructions of engineer in charge.	SQM	100		

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1600	PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, WORKING LAYOUT DRAWINGS AND DETAILS, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING MAKING RECESS FOR LIGHT FIXTURES, ALUMINIUM DIFUSERS, FIRE ALARMS ETC., POLISHING/PAINTINGS, LABOUR ETC., ALL COMPLETE AS PER SPECIFICATION.				
1601	Providing and fixing glass reinforced gypsum (GRG) ceiling system consisting of 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.				
i)	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat.	SQM	3640		
ii)	12 mm thick GRG board in profile (dome etc.) with galvanised light gauge steel load bearing supporting GI frame and finished flat.	SQM	100		
iii)	12 mm thick GRG board in tile of 600mmX600mm with double web design, galvanised steel with prepainted steel capping of approved shade and color, supporting Tee frame (24mmX38mm).	SQM	25		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1602	Providing and fixing prepainted coil coated steel ceiling system consisting of 0.5mm thick coated (as per IS277) galvanised to grade 180 mild steel (as per IS513), with regular modified polyester coating (DFT-10 microns) of required color and shade on the exposed surface and supporting grid system of roll formed double web design galvanised steel Tees 24mm X 38mm (with prepainted steel capping of approved shade and color) froming panels of specified size, for tile type panels, and roll formed stove enamelled 0.6mm thick steel carrier for fixing of lineal type panels by clip on arrangement, suspended from RCC slab/structural steel or catwalkway steel channel grid above with 4mm (minimum) galvanised wires (rods) with special height adjustment clips, including preperation of working drawings, providing openings for AC ducts, return air grills, light fixtures etc but excluding the cost of catwalkway all complete as per drawings, specifications and instructions of engineer				
i)	Tile type square pattern panels of 600mm X 600mm size with Tee support.	SQM	10		
ii)	Lineal pattern (closed type) of 100 mm nominal width with carrier support	SQM	10		
1602A	Providing and fixing Lineal Aluminium -Luxalon or equivalent false ceiling (type 84-c interior) with necessary fixtures and fittings all complete as per specifications.	SQM	200		
1700	PROVIDING AND FIXING RAIN WATER DOWN TAKE PIPES INCLUDING 2 COATS OF APPROVED PAINT OVER A PRIMARY COAT, ALL SPECIALS AND ACCESSORIES ETC. COMPLETE AS PER SPECIFICATION.				
1701	GI down take pipes conforming to IS1239/IS3589 as per specification of following dia.				
i)	100 mm dia	RM	50		
ii)	150 mm dia	RM	1680		
iii)	200 mm dia	RM	250		
1702	CI down take pipes conforming to IS1230 with lead joints as per specification of following dia.				
i)	100 mm dia	RM	5		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
ii)	150 mm dia	RM	100		
iii)	200 mm dia	RM	25		
1800	MISCELLANEOUS				
1801	Providing and fixing PVC water stops 225mm wide, 6 mm thick.	RM	25		
1802	Supplying and installation of 25mm thick vibration damping, resilient pads around foundation of vibrating equipment and other locations as directed by the Engineer-in-charge including cost of all materials labour equipment etc. complete as per drawing and specifications.	SQM	10		
1803	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm and down broken stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction and cost of all material, labour all complete as per specification and as directed by the Engineer.	SQM	50		
1803A	Providing 50mm thick anticorrosive layer laid to slope consisting of compacted crushed stone screenings, fine gravel, clean sand or similar material as directed by the Engineer, mixed in hot asphalt 10% by volume and rolled or compacted complete as per drawings and specifications, below fuel oil tanks and at such other places as per specifications and as directed by the Engineer.	SQM	50		
1805	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including aluminium screws, rawl plugs all complete as per specification.	RM	50		
1807	Providing, laying and fixing transformer rails including guide rails in concrete including joining of rails. Anchoring lugs etc. complete as per specification.	MT	80		
1808	Laying of earthing mats/rods including transportation from yard stores, loading, unloading, cutting to length, welding etc. complete as per specification and as directed by Engineer-in-charge. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)	MT	50		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
1810	Providing and fixing GI rungs in concrete/brick walls at all elevations including @ zinc coating shall not be less than 900 g/sqm all complete.	KG	500		
2000	FENCING AND GATES.				
2001	Supplying and erecting in position 2.5 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75 mm and galvanised concertina . The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing confirming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accesories as per specification all complete. Required civil works like excavation & concreting for fencing shall be paid seperately as per respective item rate. Quoted rate for this item shall include erection / fabrication of steel post, supplying & fixing of all accessories like clips, anchors etc.as per drawing. However Material for fabrication of steel post shall be supplied free of cost by BHEL. Drawing for subject shall be provided at site during execution	SQM	1300		
2002	Supplying and fixing G.I. barbed wire in fencing including G.I clips etc. complete as per specification Required civil works like excavation & concreting for fencing shall be paid seperately as per respective item rate. Quoted rate for this item shall include erection / fabrication of steel post, supplying & fixing of all accessories like clips, anchors etc.as per drawing. However Material for fabrication of steel post shall be supplied free of cost by BHEL. Drawing for subject shall be provided at site during execution	MT	1		
2003	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, ball bearing arrangements, castor wheels,etc. all complete as per drawing, specification and as directed by Engineer-in-charge with 600mm high GI barbed wire fencing at top all complete. GI barbed wire shall be paid as per Item No. 2002	MT	2		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2100	WATER SUPPLY				
2101	Providing and fixing in position tested heavy duty type chromium plated brass long neck bib cocks including sockets, union, nut etc. complete 15mm nominal bore.	NO.	55		
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc. complete as directed by Engineer 15mm nominal bore.	NO.	25		
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 25mm nominal bore.	NO.	13		
2104	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 50mm nominal bore.	NO.	8		
2105	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc. complete (internal work) 15 mm nominal bore.	RM	125		
2106	Providing and fixing GI pipes complete with GI fittings a clamps including cutting and making good the walls etc. complete (internal work) 20 mm nominal bore.	RM	75		
2107	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc.complete (internal work) 25 mm nominal bore (N.B).	RM	75		
2108	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc. complete (external work) 15mm nominal bore (N.B).	RM	75		
2109	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete (external work) 20mm nominal bore (N.B).	RM	75		
2110	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete (external work) 25mm nominal bore (N.B).	RM	75		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2111	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete (external work) 50mm nominal bore (N.B).	RM	55		
2112	Providing and fixing 610mmx453mmx5mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc. complete with CP screws as per specification.	NO.	20		
2113	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc. complete as per specification.	NO.	20		
2114	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. brackets etc. all complete as per specification.	NO.	12		
2115	Providing and fixing C.P. soap holder mounted with C.P. screws etc.complete as per specification.	NO.	20		
2116	Providing and fixing C.P. liquid soap dispenser . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc.complete as per specification.	NO.	20		
2117	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. complete as per specification	NO.	15		
2118	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	No.	10		
2119	Providing & fixing P.V.C. /Polyethylene water tank (Syntex or equivalent) in position of 5000 litres capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	2		
2120	Providing & fixing P.V.C. /Polyethylene water tank (Syntex or equivalent) in position of 2000 litres capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	1		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2121	Providing & fixing P.V.C. /Polyethylene water tank (Syntex or equivalent) in position of 500 litres capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	3		
2122	Providing & fixing P.V.C. /Polyethylene water tank (Syntex or equivalent) in position of 1000 litres capacity conforming to IS 12701. The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels	NO.	3		
2200	SANITARY WORKS				
2201	Supply and fixing vitreous china wash basin size 600x450 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, cutting and making good the walls where required etc. complete as per specifications	NO.	18		
2202	Providing and fixing approved vitreous china acid/alkali resistant laboratory sink of size 600x450x200mm with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass bottle trap with necessaary union complete including painting the fittings, cutting and making good the wall where required as per specification.	NO.	4		
2203	Providing and fixing colour European type water closet with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre glazed stone water flushing cistern with valveless fittings, necessary C.P connections etc. complete as per specification.	NO.	17		
2204	Providing and fixing Orissa type glazed vitreous china pan conforming to IS2556 (Part 3)with foot rests and high level 12.5 litre C.I flushing cistern with valveless fittings, necessary C.P connections, foot rests shall be made of white glazed vitreous china with chequered surface allcomplete with cistern painting, C.I brackets etc. as per specification.	NO.	17		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2205	Providing and fixing wall type glazed vitreous china urinals with C.I automatic flushing cistern approximately once every five minutes for every four urinals (max.) with flush pipes, lead pipes, gratings, CP bottle traps and necessary C.P fittings all complete as per specifications.	NO.	13		
2206	Supply, laying and jointing 75mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead cocking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	60		
2207	Supply, laying and jointing 100mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	55		
2208	Supply, laying and jointing 150mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, a coat of bitumenous paint, M.S holder bats/clam lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	55		
2209	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. complete 150mm dia, as per specifications.	RM	25		
2210	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. complete 200mm dia, as per specifications.	RM	15		
2211	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. complete 250mm dia, as per specifications.	RM	15		
2212	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. complete 300mm dia , as per specifications.	RM			

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2213	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. complete 500mm dia , as per specifications.	RM	15		
2214	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. complete 600mm dia , as per specifications.	RM	10		
2215	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. complete 900mm dia , as per specifications.	RM	2		
2216	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. as per specifications for dia:				
i)	150mm	RM	15		
ii)	250mm	RM	175		
iii)	300mm	RM	175		
iv)	400mm	RM	65		
v)	500mm	RM	15		
vi)	600mm	RM	10		
vii)	750mm	RM	5		
2218	Providing and fixing C.I Manhole cover of size 600mmx450mm including frame from reputed manufacture all complete as per specifications.	NO.	5		
2219	Providing and fixing circular heavy duty man hole cover of 600mm dia with frame all complete as per specification.	NO.	2		
2220	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 100x100mm P or S Type.	NO.	3		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2221	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x100mm P or S Type.	NO.	3		
2222	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and water tight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x150mm P or S Type.	NO.	3		
2223	Providing and fixing C.I. floor traps with C.P jalli complete as per specification.	NO	10		
2224	Providing and installing approved brand single tap water cooler of 80 L cooling capacity complete in all respect.	NO.	5		
2225	Providing and installing approved brand single tap water cooler of 150 L cooling capacity complete in all respect.	NO.	3		
2226	Providing and fixing white viterous urinal partitions all complete as per specification.	NO.	10		
2300	STRUCTURAL STEEL WORKS				

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2301	Supply,fabrication, erection, alignment, welding, primer painting (primer coat consisting of 2 coats of redoxide zinc-chromate as per IS:2074 & IS:1477 (Parts I & II). One coat to be applied at shop and the other after erection) of structural steel made from mild steel conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052 and mild steel rounds, at all elevations involving rolled sections (including mild steel rounds), built up sections fabricated out of plates, rolled sections and combination of plates and rolled sections, in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, shear connectors, 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, diaphragm, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rail(G.I),	MT	9442		
	toeplates, MS Rungs, insert plates, edge angles, embedments, lugs, posts, stays, louvers, lacings, gusset plates, safety chains for walkways adjacent to crane girders etc, collection of steel from stores, transportation, straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, bolting, erection bolts & nuts (weight erection bolts & nuts not payable, Supply of permanent bolt of grade C mild steel bolts & nuts to be paid separately under ST NO. 2310 (i)), assembly, edge preparation, preheating(& use of low hydrogen/ radiogenic electrodes as per specification), 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 (Scaffolding, Access ladders, Working Platforms etc.), setting column bases, surface preparation, touch-up painting,				

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
	dismantling and removal of all temporary structures (weight of temporary structures not payable) complete with all labour, material, electrodes and other consumables, equipment, testing (mechanical and non- destructive), preparation of fabrication drawings, joint design calculations and all other general and special requirements, all other activities required for completion of the work including return of surplus/ waste steel materials to store etc. as per specification, drawings and instructions of the Engineer. (Steel shall be supplied free of cost by BHEL as per Clause 39.1)				
2303	Extra over ST NO. 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface) instead of primer coat of red oxide zinc-chromate, including touch up painting as per specification and instruction of the Engineer.	MT	153		
2304	Treatment of structural steel complete including surface preparation, painting etc complete as per attached write up, specification, drawings and instructions of the Engineer.	MT	8061		
2305	Providing & application of epoxy based colour finish paint in two coats with minimum 50 micron total thickness (DFT) of approved make and shade over steel sections already having primer coats (as per ST NO. 2302) at all elevations to achieve an even shade with all materials, labour, equipment, handling including protection and cleaning, scaffolding etc. complete as per specification, drawings and instruction of the Engineer.(Total thickness (DFT) including primer shall not be less than 100 micron.)	MT	102		
2306	Providing and application of chemical resistant epoxy mortar lining (minimum 3mm thick) over primer coat (as per ST NO. 2303),consisting of epoxy resin, hardener and quartz sand (not exceeding 7 parts by weight) to steel surfaces of all types, shapes and sizes at all elevations to achieve even surfaces with all material, labour, equipment, handling, scaffolding etc. complete as per manufacturer's specifications approved by Engineer.	MT	153		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2307	Providng & application of 2 coats of chemical resistant seal coat over lining (as per ST NO. 2306) to cover up the porosity @ minimum 1 Kg of mix per coat of application for 4 to 5 m ² area of the surface including labour, material, equipment, handling, scaffolding etc. complete as per manufacturer's specification approved by the Engineer.	MT	153		
2308	Supplying, fabrication , transportation, erection and alignment of factory made electroforged gratings with steel conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc. complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade `C' mild steel bolts and nuts to be paid separately under ST NO. 2310 (i), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2 1/2) followed by two coats of red oxide zinc-chromate primer and two coats of approved colour, enamel finish paint, testing, complete as per specifications, drawings and instructions of the Engineer.	MT	174		
2309	Extra over above ST NO. 2308, for finshing the fabricated grating unit with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces, as per specifications, drawings and instructions of Engineer instead of painting with 2 coats of red oxide primer followed by two coats of enamel finish paint.	MT	51		
2310	i) Supplying 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 complete as per specification, drawings and instructions of the Engineer.	QUINTAL	31		

4X125 MW KOSTI Thermal Power Plant		RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
	ii) Supply and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work complete as per specification, drawings and instructions of the Engineer	QUINTAL	408		
2311	Dismantling of steel structure at any elevation, lowering of material and carriage of the dismantled material up to field fabrication shop, or, return to 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) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per specification, drawings and instructions of the Engineer	MT	26		
2312	Addition to, alterations in and/or modification of "Erection Marks" either in erected position or in the shop including cutting of parts, gouging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members, (weight of such temporarily dismantled and adjacent members not payable), complete as per specifications, drawings and instructions of the Engineer.				
	i) In erected position	MT	5		
	ii) In fabrication yard	MT	10		

	4X125 MW KOSTI Thermal Power Plant	RATE SCHEDULE CUM BILL OF QUANTITIES			
		TOTAL CIVIL WORKS FOR MAIN POWER PLANT PACKAGE INCLUDING STRUCTUTRAL STEEL WORKS			
ST. NO	DESCRIPTION	UNIT	QUANTITY	RATE IN EUROS	AMOUNT IN EUROS
2313	Re-erection of dismantled fabricatied structural steel members requiring additions, modification, (dismantling and additions to, alterations in and/or modification to be paid separately under ST NO. 2312 and 2313 respectively) including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required posiion, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismnatled members, re-alignment of adjacent connected members, (weight of such temporarily dismantled members and adjacent membersnot payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per the specifications, drawings and instructions of the Engineer.	MT	5		

NOTES:

1	In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.
2	The rate shall be entered in figures as well as in words. In case of difference in rates between words and figures, the lesser of the two will be treated as valid rate.
3	The bidders shall enter both 'Unit Rate' & 'Amount'. In case of any mismatch between 'Total Amount based on Unit Rate' & 'Total Amount as quoted', the lower of the two shall be considered for evaluation and award.
4	The quantities indicated against each item above are tentative and are liable to vary depending upon the site requirement. The contractor has to supply / install actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be adjusted on the basis of quantities actually erected at site & payment will also be regulated accordingly for the same. The contractor confirms that unit rate quoted above takes care of such variations during execution stage.
5	Evaluation of the bids shall be done based on total price against this BOQ.
6	'Unit Rate' as well as 'Amount' against each item to be quoted in EUROS only.