

RATE SCHEDULE CONSTRUCTION OF RCC FOUNDATIONS FOR STEAM TURBINE WITH TURBO BLOWER AND ITS AUXILIARIES, AIR INLET FILTERS, MISCELLANEOUS EQUIPMENT FOUNDATIONS, SKIDS, PLATFORMS, PAVING AND ASSOCIATED STRUCTURAL WORKS FOR 3 X18 MW TURBO BLOWER AT SAIL , ROURKELA, DISTT. SUNDERGARH (ORISSA)						
SL NO	DESCRIPTION	UNIT	QUANTITY	RATE(RS)		AMOUNT(RS)
1.0	EXCAVATION			In Figure	In Words	
1.1	Earthwork in excavation in all kinds of ordinary and hard soil (including slushy soil) up to a depth of 2.0 m below ground level and stacking within a lead of 100 m, with necessary shoring, strutting, trimming and dressing of sides etc., including bailing / pumping out of surface water/rain water/sub soil water, cutting minor vegetation, if any, complete as per drawings and specifications.					
a)	All kinds of soil (Ordinary and hard soil / slag)	CU. M.	2,876			
b)	Same as item 1.1 above, but for soft rock / slag upto 2.0m below GL which can be which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with poclain/excavator etc but does not require chiselling or blasting	CU. M.	20			
c)	Same as item 1.1 above, but for hard rock / sheet rock / slag requiring blasting upto 2.0m below GL requiring blasting/controlled blasting and/or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer. Blasting (if necessary) shall be done by approved, licensed blasting agency with the prior approval of Customer.	CU. M.	20			
1.2	Same as Item no-1.1 above but from 2.0 m - 4.0 m depth					
a)	All kinds of soil (Ordinary and hard soil / slag) from 2.0m to 4.0m below GL	CU. M.	1,831			
b)	Same as item 1.1 above, but for soft rock / slag from 2.0m to 4.0m below GL which can be which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with poclain/excavator etc but does not require chiselling or blasting	CU. M.	20			
c)	Same as item no:-1.1 above, but for hard rock / sheet rock / slag requiring blasting upto 2.0m to 4.0m below GL requiring blasting/controlled blasting and/or chiselling, wedging, line drilling, pre shearing or any other means including supply, storage, handling of blasting materials etc without damaging the existing structures and as approved by Engineer. Blasting (if necessary) shall be done by approved, licensed blasting agency with the prior approval of Customer.	CU. M.	20			
1.3	Extra over item no:- 1.1 for every additional lead of 100 m or part there of (beyond the initial lead of 100m as per item 1.1) and stacking within the compound wall.	CU. M.	20			
1.4	Extra over item no:- 1.2 for every additional lift of 1.0 m or part there of	CU. M.	20			
2.0	BACKFILLING					
2.1	Earthwork in backfilling & compacting in layers not exceeding 200 mm around foundations, trenches , below grade slabs and all other locations , as per specs, drawings and as directed by the Engineer.					
a)	With earth obtained from stacks within a lead of 100m	CU. M.	2,916			
b)	Extra over 2.1(a) for every additional lead of 100m or part there of within battery limit	CU. M.	20			
c)	With selected earth (cohesive non-swelling / murrum) obtained from borrow pits outside the battery limit within a lead of 5.0 Km inclusive of necessary royalty charges.	CU. M.	20			

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SL NO	DESCRIPTION	UNIT	QUANTITY	RATE(RS)		AMOUNT(RS)
d)	Extra over 2.1 (c) for every additional lead of 1 Km or part thereof	CU. M.	10			
2.2	Supplying and filling river sand in layers not exceeding 150mm including compacting by mechanical means, flooding with water etc all complete as per specification and as directed by the Engineer.	CU. M.	10			
2.3 a)	a) Removal of surplus earth & debris beyond battery limit upto 5 Km lead including transportatin, loading and unloading , dumping, stacking, levelling and dressing etc.complete as per specifications and drawings.	CU. M.	1,851			
b)	Extra over 2.2a for every additional lead of 1Km or part thereof	CU. M.	20			
3.0	CONCRETE					
3.1	Supplying, laying in position, compacting and curing as per specification Plain cement concrete (using OPC/PSC/SRC) of the following mix with 20mm down size aggregates below GL and upto 1.0M above GL , including consolidation of subgrade wherever required.					
a)	M10	CU. M.	91			

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PRICE BID-PART-II (VOL-II)

SL NO	DESCRIPTION	UNIT	QUANTITY	RATE(RS)		AMOUNT(RS)
3.2	Supplying, laying in position, curing as per specifications Controlled concrete (using OPC/PSC/SRC) of the following grades(graded coarse aggregates of 20mm down 12mm down shall be used wherever applicable)					
a)	for all depths below GL and 1.0 m above GL					
	i) Grade M-20 in flooring and pavings etc. with minimum cement content of 320 kg/m ³	CU. M.	5			
	ii) Grade M-25 in foundations, slabs, columns, floors, beams.etc. with minimum cement content of 400 kg/m ³	CU. M.	1,155			
b)	for all elevations 1m above G.L.					
	i) Grade M-25 with minimum cement content of 380 kg/m ³	CU. M.	5			
	ii) Grade M-25 for with minimum cement content of 400 kg/m ³ of concrete for STG top deck/columns above raft at all levels including addition of suitable plastisizers conforming to IS 9103 to achieve required strength in concrete as per manufacturers recommendations,, preparation of scheme for concreting, getting it approved by engineer.The rate shall also include Conducting Non-destructive Ultrasonic pulse velocity test as per specification to find out soundness of concrete including all equipments, tools, plants, scaffolding required for testing, preparation of test report etc. all complete as directed by Engineer.	CU. M.	773			
3.3(a)	Extra over item no.3.2 for temperature control of fresh concrete (temperature to be maintained between 18deg.C to 23deg. C) with addition of crushed ice in mixing water etc complete.	CU. M.	500			
3.3 (b)	Providing and placing in position RCC of grade M25 (using OPC/PSC/SRC) of 12mm & down graded chips with min. cement content of 400 kg/m ³ for encasing of steel structures at all elevations as per drawings, specifications , all complete.	CU.M	2			
3.4 a)	Providing and placing in position, compating , curing Reinforced concrete for paving of M20 grade with min. cement content of 320 kg/m ³ (using OPC/PSC/SRC) including laying in approved size panels, leaving grooves for sealing joints, cost of form work, finishing of top surface as required but excluding cost of reinforcement which will be paid under relevant items, etc.all complete for floors and pavement as per specifications.	CU.M	5			
3.5 b)	Providing and Fixing in position 12mm thick 'shalitex' or approved equivalent fibre board in expansion joints etc all complete as per specifications and drawings.	SQ. M.	20			
3.6	Providing and Fixing in position 20mm thick 'shalitex' or approved equivalent fibre board in expansion joints etc all complete as per specifications and drawings.	SQ. M.	30			
3.7	Supplying and laying mastic bitumen sealing compound conforming to IS:3037 or 5871 as per specification.					
	a) 20mm wide,25mm deep	R.M.	100			
	b) 10mm wide,40mm deep	R.M.	10			
3.11	Grouting under equipment bases as required,curing and finishing the exposed surfaces including all materials, form work etc. as per drawings and directions of the Engineer.					
a)	With 1:1:2 cement sand and 6mm down stone chips nominal mix by volume	CU. M.	1			

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PRICE BID-PART-II (VOL-II)

SL NO	DESCRIPTION	UNIT	QUANTITY	RATE(RS)		AMOUNT(RS)
b)	Same as item 3.11 (a) but using non shring grout like conbextra GP1 or approved equivalent, including cost of grout mix, form work, finishing , curing etc. , all complete as per drawings and manufacturers' specifications.	CU. M.	2			
c)	Same as item 3.10 (a) but using non shring grout like conbextra GP2 or approved equivalent, including cost of grout mix etc. , all complete as per drawings and manufacturers' specifications.	CU. M.	14			
4.0	FORM WORK					
4.1	Supplying, installing, dismantling and removing the following classes 'of formwork as per drawings and specifications at all levels using very good steel surface / plywood wood shuttering.					
a)	Straight in plan (including raft of STG/GTG.)	SQ.M.	2,339			
b)	Fairface formwork (using new laminated commercial ply wood)for columns and top deck of STG above raft. Rate shall include all supporting systems, cribs, structural beams required for columns, staggering of deck including proper design of scaffolding & formwork duly approved by BHEL.	SQ.M.	2,500			
4.2	Providing Pockets in concrete of sectional area less than 0.1 sq.m in plan by fixing and removing formwork for anchor bolts , pipe sleeves etc. as per drgs including. all materials ,labour etc. complete as per drawings and specifications.					
	a) Up to 300 mm deep	Nos.	300			
	b) Up to 600mm deep	Nos.	16			

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PRICE BID-PART-II (VOL-II)

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5.0	REINFORCEMENT,					
5.1	Supplying,bending, binding, transporting and placing in position following types of High Strength Deformed (HSD) bars reinforcement of all diameters and at all elevations using approved quality binding wires as per specifications and drawings.					
	a) MS reinforcement conforming to IS:432	M.T.	1			
	b) HSD reinforcement conforming to IS:1786 of minimum grade Fe 500	M.T.	206			
5.2	Supplying and fixing steel wire mesh 10 SWG,100X100mm mesh,as reinforcement for encasing steel columns at all elevations as per drawings and specifications.	Sq. m.	5			
6.0	STRUCTURAL STEEL ,					
6.1	Supplying, fabricating using approved quality electrodes of 6013 or low hydrogen 7018 for plate thickness above 20 mm, pre-heating, packing and delivering at the stores or at site of the following categories of Structural Steelwork including cost of steel,all necessary bolts, nuts & washers with a shop coat of approved Inorganic Zinc Silicate coating of 65-75 micron DFT after cleaning with manual / power tool cleaning to grade St-2 / St-3 of SIS 05 5900 or cl. 7.2.1.1 & 7.2.1.2 of IS:1477 (part-1)etc. all complete as per drawings and specifications. Rate shall include surface preparation by SSPC-SP-10.					
a)	Steel work consisting of portal frames , laced & plated columns, beams, fabricated with standard rolled sections, plates , flats, angles pipes etc.	M.T.	130			
b)	Steel work consisting of roof trusses with standard rolled sections, plates, flats, angles, pipes etc.	M.T.	5			
c)	Steel work consisting of purlins, non plated beams , bracings, sag rods with anchor cleats / end plates	M.T.	5			
d)	Miscellaneous steel work such as cable trench cover frames, fencing poles etc.	M.T.	5			
6.2	Erection of structural steel as described in 6.1 including grouting under bases using Convextra GP1,with necessary erection bolts, nuts & washers, welding electrodes of 6013 or low Hydrogen electrodes of 7018 grade, wherever required, with all Tools & plants, machinaries, cranes etc. complete as per drawings and specifications.	M.T	145			
6.3	Supplying, fabricating and fixing in positions MS inserts like channels, angles, flats, rounds, plates, pipe sleeves and any other structural shape etc. including cost of steel , necessary templates / stagings, cutting to required lengths, bolting revetting welding etc. as required all complete as per drawings and specifications.	M.T.	13			
6.4	Supplying, fabricating and fixing in positions foundation hardware in concrete including cost of rail sections, necessary templates / stagings, cutting to required lengths, bolting revetting welding etc. as required all complete as per drawings and specifications.	M.T.	3			
6.5	Taking delivery of foundation hardware supplied by BHEL and transporting to site, fixing in position foundation hardware such as anchor bolts, nuts, washers, anchor assembly etc. as per drawing including fixing to proper level and alignment using contractor's own templates, protecting till handover of the foundation, all complete as per drawings and specifications.	M.T.	1			
6.6	Supplying and erecting hot dip galvanised GI floor gratings with minimum coating of 710 gms per sq.m. , staircase steps as per dwg including all fasteners, painting with two coats of aluminium paint at the places of site welding etc all complete as per specifications.	M.T	5			
6.7	Supplying, fabricating, fixing in position 32NB MS pipe handrails at various elevation including cost of materials, consummables, labour, painting with synthetic enamel paint etc. all complete as per drawing and specifications.	R.M.	70			

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PRICE BID-PART-II (VOL-II)

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6.8	Supplying, fabricating, fixing in position by welding 18 gauge MS sheets to steel columns for encasing at various elevations , all complete as per drawings and specifications.	M.T	0.5			
6.11	Supplying, fabricating and fixing in positions Seismic Arrestor inserts made up of pipes, channels, angles, flats, rounds, plates, pipe sleeves and any other structural shape etc. including cost of steel, necessary templates / stagings, cutting to required lengths, machining of top surfaces, bolting revetting welding etc. as required all complete as per drawing No:-3-38144-00036 and specifications.	M.T.	3			
11.0	PAINTING					
11.2	Providing complete Protective coating system to Stuctural Steel with one coat of primer over one coat of primer applied at shop and 2 coats of finish paint of synthetic enamel of approved colour with all materials, consumables and scaffoldings complete as per specifications and drawings.					
	a) Trusses, purlins etc.	M.T.	145			
	b) Sheeting works	SQ.M.	10			
18.0	MISCELLANEOUS ITEMS					
18.3	Supplying and fixing in positions Anchor Fasteners of FISCHER make FBN bolt or approved equivalent of following diameters in concrete, including drilling in concrete, driving the anchor fastner, finishing the concrete etc., all complete as per drawings and specifications					
	a) 8 mm	Nos	20			
	b) 10 mm	Nos	20			
	c) 12 mm	Nos	20			
	d) 14 mm	Nos	20			

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	e) 16 mm	Nos	20			
	f) 20 mm	Nos	20			
18.5	Cutting and drilling holes of the following diametes using diamond cutter drilling machine with all material, labour etc., all complete as per drawings and specifications.					
	a) 100mm dia x 200 mm deep	Nos	10			
	b) 150mmdia x 200 mm deep	Nos	10			
	c) 200mm dia x 200 mm deep	Nos	10			
	d) 250mm dia x 200 mm deep	Nos	10			
20.0	DISMANTLING OF STRUCTURE					
20.1	Dismantling and removal before modification of the following items in the existing structures with all labour, tools, transport etc. all complete including delivering as directed by Engineer.					
	a) Concrete (plain)	CU.M.	5			
	b) Concrete (rein forced)	CU.M.	5			
	c) Brickwork	CU.M.	2			
	d) Doors, windows, ventilators	SQ.M.	5			
	e) 50 Tk.premix carpet	SQ.M.	5			
	f) Pipe hand rail	R.M.	5			
	g) GI sheetings	SQ.M.	5			
	h) Structural steel	M.T.	5			
	i) WBM/soling for roads or paving	SQ.M	5			
	j) Dismantling of false ceiling	SQ.M	5			
	TOTAL VALUE IN (Rs)					
	TOTAL VALUE IN WORDS					