Corrigendum - 6 dated 23/07/2026 to CPC Tender No. BHEL/CPC/TLG/C_MPH_BLR_ESP_TG/27/033

Work Description - **Package 2A -** Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Paving-Fire Protection System (FPS) & Sewerage Waterline Works, internal roads & drains, Structural Works of Powerhouse, Mill & Bunker, Pipe Racks and other Misc. structures etc. of Unit#3 at 3x 800 MW NTPC Telangana BTG Package, Ramagundam.

Package 2B - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Paving-Fire Protection System (FPS) & Sewerage Waterline Works, internal roads & drains, Structural Works of Powerhouse, Mill & Bunker, Pipe Racks and other Misc. structures etc. of Unit#4 at 3x 800 MW NTPC Telangana BTG Package, Ramagundam.

Package 2C - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Paving-Fire Protection System (FPS) & Sewerage Waterline Works, internal roads & drains, Structural Works of Powerhouse, Mill & Bunker, Pipe Racks and other Misc. structures etc. of Unit#5 at 3x 800 MW NTPC Telangana BTG Package, Ramagundam.

A) Sl. No. B-2.2 of PRE-QUALIFYING REQUIREMENTS (PQR), Annexure -1 of NIT is revised as mentioned below:

SL. NO.	Document/ Ref. Clause	Existing Clause		Revised As	
1	NIT, Annexure-1, PRE-QUALIFYING REQUIREMENTS (PQR), **SL NO. B-2.2**	**B-2.2**	**For Structural Steel Erection Works (Consortium Bidding Allowed):**	**B-2.2**	**For Structural Steel Erection Works (Consortium Bidding Allowed):**
		B-2.2.1	Bidder should have executed at least **3870 MT** for Structural Erection Work, within a common period of "twelve consecutive months in cumulative of two running/completed contracts in any Power Projects / Industrial Projects / "Infrastructure Projects (#Water Infra Projects, Airport, Dams, Water Ports, Jetty, Metro/Rail Station)". #Water Infra Projects shall comprise of Tunnel/Pumping Stations/Lift Irrigation works **OR**	**B-2.2.1**	Bidder should have executed at least **3920 MT** for Structural Erection Work, within a common period of "twelve consecutive months in cumulative of two running/completed contracts in any Power Projects / Industrial Projects / "Infrastructure Projects (#Water Infra Projects, Airport, Dams, Water Ports, Jetty, Metro/Rail Station)". #Water Infra Projects shall comprise of Tunnel/Pumping Stations/Lift Irrigation works **OR**
		B-2.2.2	Bidder should have executed at least **2580 MT** for Structural Erection Work, within a period of "twelve consecutive months in one running/completed contract in any Power Projects / Industrial Projects /	**B-2.2.2**	Bidder should have executed at least **2610 MT** for Structural Erection Work, within a period of "twelve consecutive months in one running/completed contract in any Power Projects / Industrial Projects

SL. NO.	Document/ Ref. Clause	Existing Clause		Revised As	
			"Infrastructure Projects (#Water Infra Projects, Airport, Dams, Water Ports, Jetty, Metro/Rail Station)". #Water Infra Projects shall comprise of Tunnel/Pumping Stations/Lift Irrigation works **OR** Bidder should have executed Erection work of complete "Boiler (Consisting of Structures, Pressure Parts of the same unit as standalone Bidder) or "Main Power House" or "Coal Handling Plant (consists of structure or 'structure and equipment')" for at least one unit of ≥500MW **Note:** Under Criteria B- 2.2.3 above, the word 'Executed' means: • For CHP - Readiness for Coal Firing. • For Main power House - Readiness of LPT box up/barring gear to be considered. • For Boiler - Boiler Light Up		/ "Infrastructure Projects (#Water Infra Projects, Airport, Dams, Water Ports, Jetty, Metro/Rail Station)". #Water Infra Projects shall comprise of Tunnel/Pumping Stations/Lift Irrigation works **OR** Bidder should have executed Erection work of complete "Boiler (Consisting of Structures, Pressure Parts of the same unit as standalone Bidder) or "Main Power House" or "Coal Handling Plant (consists of structure or 'structure and equipment')" for at least one unit of ≥500MW **Note:** Under Criteria B- 2.2.3 above, the word 'Executed' means: • For CHP - Readiness for Coal Firing. • For Main power House - Readiness of LPT box up/barring gear to be considered. • For Boiler - Boiler Light Up
		B-2.2.3		**B-2.2.3**	

B) The following Clause of **NOTICE INVITING TENDER (NIT)** is revised as mentioned below**:**

SL. NO	Document/ Ref. Clause	Existing Clause		Revised As	
1	NIT, Clause No. 36.0 – Mode of Award	**36.0 Mode of Award:** 36.1 **Package Award Methodology –**		**36.0 Mode of Award:** 36.1 **Package Award Methodology –**	
		Package	**Award Basis**	**Package**	**Award Basis**
		Package 2A (Unit #3)	To be awarded to L-1 bidder (lowest acceptable bidder)	Package 2A (Unit #3)	To be awarded to L-1 bidder (lowest acceptable bidder)
		Package 2B (Unit #4)	To be offered to another bidder at the rates derived from Package 2A	Package 2B (Unit #4)	To be offered to another bidder at the rates derived from Package 2A
		Package 2C (Unit #5)	To be offered to another bidder at the rates derived from Package 2A	Package 2C (Unit #5)	To be offered to another bidder at the rates derived from Package 2A

Corrigendum - 6 dated 23/07/2026 to CPC Tender No. BHEL/CPC/TLG/C_MPH_BLR_ESP_TG/27/033

SL. NO	Document/ Ref. Clause	Existing Clause	Revised As
		36.2 The price ratio of Packages is as follows: Package 2A:2B:2C — **1.0000000000: 0.8968515509: 0.8680267389**	36.2 The price ratio of Packages is as follows: Package 2A:2B:2C — **1.0000000000: 0.8975823908: 0.8630157598**
		36.3 **Submission of Prices:** Bidders shall submit their price bids for Package 2A only.	36.3 **Submission of Prices:** Bidders shall submit their price bids for Package 2A only.
		36.4 **Award of Package 2A:** Package 2A shall be awarded to the bidder determined as the Lowest Evaluated Bidder (L-1), subject to the L-1 rates being acceptable to BHEL.	36.4 **Award of Package 2A:** Package 2A shall be awarded to the bidder determined as the Lowest Evaluated Bidder (L-1), subject to the L-1 rates being acceptable to BHEL.
		36.5 **Derivation of Prices for Packages 2B and 2C:**- The contract prices for Packages 2B and 2C shall be derived from the finalized L-1 price of Package 2A, in accordance with the ratio specified above.	36.5 **Derivation of Prices for Packages 2B and 2C:**- The contract prices for Packages 2B and 2C shall be derived from the finalized L-1 price of Package 2A, in accordance with the ratio specified above.
		36.6 **Award of Package 2B:** The derived price for Package 2B, based on the finalized L-1 rates, shall be offered to the remaining bidders in ascending order of price competitiveness (i.e., L-2, L-3, L-4, and so on) for acceptance. The first bidder accepting the offered price shall be considered for award of Package 2B. In the event that no bidder accepts the offered price for Package 2B, the Package shall be awarded to the bidder awarded Package 2A (L-1 bidder), who shall be obligated to accept the award. Upon such award of Package 2B, the said bidder shall not be eligible for consideration for award of Package 2C.	36.6 **Award of Package 2B:** The derived price for Package 2B, based on the finalized L-1 rates, shall be offered to the remaining bidders in ascending order of price competitiveness (i.e., L-2, L-3, L-4, and so on) for acceptance. The first bidder accepting the offered price shall be considered for award of Package 2B. In the event that no bidder accepts the offered price for Package 2B, the Package shall be awarded to the bidder awarded Package 2A (L-1 bidder), who shall be obligated to accept the award. Upon such award of Package 2B, the said bidder shall not be eligible for consideration for award of Package 2C.
		36.7 **Restriction on Award of Multiple Packages:** For the purpose of not awarding more than two aforementioned packages to one bidder, no bidder shall be considered for further award of work	36.7 **Restriction on Award of Multiple Packages:** For the purpose of not awarding more than two aforementioned packages to one bidder, no bidder shall be considered for further award of work

SL. NO	Document/ Ref. Clause	Existing Clause	Revised As
		of more than 2 packages in present or future tenders for the tendered work. 36.8 **Award of Package 2C:** The derived price for Package 2C, based on the finalized L-1 rates, shall be offered to the next bidders (bidder next to whom Package 2B is awarded), excluding the bidders already awarded Packages 2A and 2B, in order of price competitiveness for acceptance. The first bidder accepting the offered price shall be considered for award of Package 2C. In case, none of the bidders (including the bidders who have earlier refused during step 4 & step 6) agrees to match the finalized L-1 rates for Package 2C, the awarded bidder of Package 2A shall be awarded Package 2C and shall be obligated to accept the same, provided that such bidder has not already been awarded both Packages 2A and 2B. 36.9 **Separate Contracts -** Packages 2A, 2B, and 2C shall each constitute separate and independent contracts.	of more than 2 packages in present or future tenders for the tendered work. 36.8 **Award of Package 2C:** The derived price for Package 2C, based on the finalized L-1 rates, shall be offered to the next bidders (bidder next to whom Package 2B is awarded), excluding the bidders already awarded Packages 2A and 2B, in order of price competitiveness for acceptance. The first bidder accepting the offered price shall be considered for award of Package 2C. In case, none of the bidders (including the bidders who have earlier refused during step 4 & step 6) agrees to match the finalized L-1 rates for Package 2C, the awarded bidder of Package 2A shall be awarded Package 2C and shall be obligated to accept the same, provided that such bidder has not already been awarded both Packages 2A and 2B. 36.9 **Separate Contracts -** Packages 2A, 2B, and 2C shall each constitute separate and independent contracts.

C) BOQ Cum Rate Schedule is revised and attached as Annexure-1 to this Corrigendum.

D) The following Clauses of **Technical Conditions of Contract** (TCC) is revised as mentioned below**:**

SL. NO	Document/ Ref. Clause	Existing Clause	Revised As
1	TCC Clause No **3.14.1**	BHEL shall provide water supply free of cost (at single point source) for construction purpose as and when made available by customer **within months** from date of start of work for construction purpose. Contractor has to make arrangement of further distribution. However, contractor shall make alternate arrangement of construction water till the same is made available by BHEL.	BHEL shall provide water supply free of cost (at single point source) for construction purpose as and when made available by customer **within 6 months** from date of start of work for construction purpose. Contractor has to make arrangement of further distribution. However, contractor shall make alternate arrangement of construction water till the same is made available by BHEL.

SL. NO	Document/ Ref. Clause	Existing Clause	Revised As
2	TCC Clause No **2.5.10 (ii)**	Royalty/ seigniorage charges (if any) for excavation inside project premises, if it becomes applicable, as per **Govt. of Madhya Pradesh Notification** shall be reimbursable to the bidder by BHEL for the quantum of earth work done on submission of necessary documentary evidence as proof of payments/ challans as required by BHEL for reimbursement by the contractor for making such payments as per statutory provisions and this reimbursement shall be over and above the contract price.	Royalty/ seigniorage charges (if any) for excavation inside project premises, if it becomes applicable, as per **Govt. of Telangana Notification** shall be reimbursable to the bidder by BHEL for the quantum of earth work done on submission of necessary documentary evidence as proof of payments/ challans as required by BHEL for reimbursement by the contractor for making such payments as per statutory provisions and this reimbursement shall be over and above the contract price.
3	New Clause Added – TCC Clause No **4.8**	NIL	During execution, the contractor has to provide Safety Equipment and PPEs as specified in the tender and / as instructed by BHEL Engineer/Customer. In case BHEL issues such Safety Equipment and PPEs to the contractor, the extant charges for the same with applicable overheads will be recovered from the contractor
4	New Clause Added – TCC Clause No **9.8**	NIL	**Bank Guarantee for Material Issued for Fabrication Works (Applicable Only in Case, Fabrication Yard Has Been Arranged by The Bidder Outside the Plant Premises): -** **a)** Where structural steel is issued by BHEL to the Contractor for fabrication at the Contractor's works located outside the project/plant premises, the Contractor shall, prior to taking delivery/issue of such material, submit an irrevocable and unconditional Bank Guarantee (BG) from a Nationalized/Scheduled Commercial Bank, acceptable to BHEL, covering the value of material proposed to be issued. **b)** Initial Bank Guarantee: The Contractor shall submit a Bank Guarantee for an initial quantity of 500 MT (Metric Tons) of structural steel, valued at the rate of Rs. 80,000/- before any material is issued to the Contractor for off-site fabrication. **c)** Additional Bank Guarantee: In the event the net quantity of steel issued (i.e "Issued Structural Steel for Fabrication" – "Fabricated material actually supplied into the project premises") to the Contractor for fabrication exceeds 500 MT, the Contractor shall submit additional Bank Guarantee(s) for the incremental quantity, at the same rate of Rs. 80,000/- per MT, prior to further issuance of material beyond the covered quantity. No additional

SL. NO	Document/ Ref. Clause	Existing Clause	Revised As
			material shall be issued unless the corresponding additional BG is submitted and accepted by BHEL. d) Validity/Currency of Bank Guarantee: The Bank Guarantee(s) shall remain valid and live throughout the fabrication period and shall not be released, cancelled, or allowed to lapse until the entire quantity of fabricated material corresponding to the issued steel has been received back within the project/plant premises, duly inspected and accepted by BHEL. The Contractor shall ensure timely renewal/extension of the BG(s) to maintain continuous validity, with a suitable claim period (e.g., minimum 3 months) beyond the anticipated date of return of fabricated material. e) Proportionate Release: The Bank Guarantee value corresponding to the fabricated material actually supplied into the project premises may be released or reduced proportionately by BHEL, upon written request by the Contractor, subject to reconciliation of material issued vs. fabricated steel supplied, and after adjusting for any wastage as per the applicable norms of this Contract. f) Invocation: In case of shortage in fabricated material received vis-à-vis material issued (beyond permissible wastage), non-completion/non-return of fabricated material within the stipulated period, or any breach of the terms governing issuance of free-issue material, BHEL shall be entitled to invoke and encash the Bank Guarantee(s), in full or in part, without prior notice to the Contractor, to recover the value of unaccounted/short-received material. g) The Contractor shall bear all costs, charges, and stamp duty associated with the issuance, renewal, and extension of the Bank Guarantee(s). **Note –** BG Format for the same is attached as Annexure-2 to this Corrigendum

E) Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications issued by BHEL are as below;

SL. NO.	Document/ Ref. Clause	Existing Clause	Bidder's Query	BHEL's Clarification
1	BOQ Item No A2419	Providing and laying concrete of grade M35 using 20 mm nominal size stone ……..curing and providing & fixing for work etc. all complete. (Excluding the cost of reinforcement and dowel bar)	We understand that, the Cement will be Free issue by BHEL. Please confirm.	Cement will be free issue.
2	BOQ Item No B2421	Providing and laying of plain cement concrete of grade M15 using 40 mm ……., compaction etc. all complete	We understand that, the Cement will be Free issue by BHEL. Please confirm.	Cement will be free issue.
3	BOQ Item No A2422	Providing and fixing in position MS dowel bar reinforcement …… drawing and as directed by Engineer.	We understand that, the MS dowel bar reinforcement will be Free issue by BHEL. Please confirm.	Supply of MS Steel Reinforcement/Dowel bars for St No 401, St No A2422, A2423 shall be in the scope of contractor and is included in the price of the BOQ Item.
4	BOQ Item No A2423	Providing, straightening cutting, bending, placing in position at any level …… all complete as per specifications, drawings and as directed by Engineer.	We understand that, steel reinforcement will be Free issue by BHEL. Please confirm.	Supply of MS Steel Reinforcement/Dowel bars for St No 401, St No A2422, A2423 shall be in the scope of contractor and is included in the price of the BOQ Item.
5	BOQ Item No A2424	Providing & installation of bitumen impregnated fibre board of specified thickness …… all complete as per specification, drawing and as directed by engineer.	Please provide thickness of board	The thickness of fibre board is 20 mm.
6	BOQ Item No 707	Providing, laying and fixing rails(52kg/rm) and guide ……	We understand that, Rails (52kg/rm) will be Free issue by BHEL. Please confirm.	Supply of Rail Shall be in Bidder's Scope.

Corrigendum - 6 dated 23/07/2026 to CPC Tender No. BHEL/CPC/TLG/C_MPH_BLR_ESP_TG/27/033

SL. NO.	Document/ Ref. Clause	Existing Clause	Bidder's Query	BHEL's Clarification
7	BOQ Item No A1850	Providing engineering services for Rain water harvesting including preparation of Rain water harvesting scheme……**...**specifications, drawings and direction of engineer**.** **Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50% insulation to be paid separately). Payment Breakup: a) On Supply & receipt of material site - 60%**	Payment terms mentioned are for different item. Request to change accordingly.	BOQ Item No A1850 may be read as below: "Providing engineering services for Rain water harvesting including preparation of Rain water harvesting scheme, collection of required data, submitting to ground water board and getting approval from Customer and Ground water board at start & completion of work etc. complete as per statutory norms. The Engineering firm/person should be approved/accepted by ground water board and shall have similar experience of rain water harvesting for complete power plant. The scope shall include rain water harvesting for entire plant including Coal handling plant, ash handling plant inside plant boundary. The scope shall include preparation of rain water calculations, calculations for ground recharge/collection, economical design of rain water harvesting with different options under discussion with BHEL and submit design, drawings, report to Ground water board, obtain approval from Ground water board & Customer and on completion of work get the completion approval for rain water harvesting from Ground water board. This includes visits to site with/without ground water board officials and rate of this item shall include all expenses of consultancy, site visits etc. required from start of work till final obtaining of completion approval from ground water board. Payment for execution of rain water harvesting ponds & ground water recharge scheme shall be paid separately."

SL. NO.	Document/ Ref. Clause	Existing Clause	Bidder's Query	BHEL's Clarification
8	General		Erection and commissioning of 3 units PH EOT Crane envisaged in Package 2A. Until and unless other 2 units are not ready for the EOT, Erection, alignment and commissioning of EOT and subsequently Package 2A shall get delayed. Kindly review	Schedule for completion of all 3 units of the Powerhouse is planned simultaneously. Accordingly, the fronts required for Erection, Alignment and Commissioning of the EOT Crane shall be provided in a synchronized manner across all 3 units, in line with the overall project schedule.
9	General		As per our site visit on 27.06.2026, it is understood that land/site for vendor site office, Batching plant are designated outside the plant boundary including dumping yard however designated place for site fabrication (BOQ Item no C2301) has not been advised by BHEL. kindly advise/clarify whether the site fabrication yard designated for vendor by BHEL is inside the boundary or outside the plant boundary and if outside what is the distance from the plant gate.	**For Agency Site office/Agency Storage Area: -** 1. Bidder has to make his own arrangements for land/space of the above areas. 2. However, in case BHEL provides space to the contractor in future, then such allotment shall be on chargeable basis. Bidder to make his own arrangements for levelling-grading, electricity, lighting and water for such space provided. **For Batching Plant/ Reinforcement Bending Yard/Fabrication Yard: -** 1. BHEL will provide land free of cost for Batching Plant, Fabrication Yard & Reinforcement Bending Yard at approx. 1-2 km from the entrance to project premises. 2. Construction Power will be provided to the contractor free of cost at a single point near this location. Further, distribution will be in the scope of the contractor. 3. Construction Water will be provided to the contractor free of cost at a single point
10	General		As per our site visit on 27.06.2026, it is understood that land/site for vendor site office, Batching plant are designated outside the plant boundary including dumping yard however designated place for reinforcement bending yard etc has not been advised by BHEL. kindly advise/clarify whether the reinforcement bending yard designated for vendor by BHEL is inside the boundary or outside the plant boundary and if outside what is the distance from the plant gate.	
11	General		Batching Plant - Kindly confirm that a minimum area of 7,000 sq.m will be made available within the project boundary for installation of the RMC batching plant, including stacking of sand and aggregates.	

SL. NO.	Document/ Ref. Clause	Existing Clause	Bidder's Query	BHEL's Clarification
12	General		Site office and Stores- Kindly confirm that a minimum area of 10,000 sq.m will be made available within the project boundary for the Contractor's site office and stores.	near this location. Further, distribution will be in the scope of the contractor. 4. Required levelling grading works to be undertaken by the bidder at his own cost. 5. In case, for fabrication yard, BHEL is unable to provide land, the same shall be arranged by bidder and payment shall be made in line with BOQ St No C2301A
13	General		Storage yard - Kindly confirm that a minimum area of 10,000 sq.m will be made available within the project boundary for the reinforcement and structural steel storage/fabrication yard.	
14	General		Water & Power connection availability - Kindly confirm that water and electrical power connections will be provided at the RMC batching plant, site office & stores, and reinforcement & structural steel yard.	
15	General		If the fabrication yard is located outside the plant than the weightage of the relevant item needs to be reviewed and is not sufficient. Kindly review and revert	Bidder to refer revised BOQ CUM Rate Schedule attached as Annexure-1 to this Corrigendum.
16	General		Since the storage yard of BHEL is located 12 km from plant gate and a security gate is presently being constructed by NTPC on the way to yard other than the plant gate and there is serous space constraint in and around the project space which is a fact, the weightage of structural erection and fabrication in the BOQ is not sufficient and needs to be reviewed and revised. Kindly review and revert	Bidder to refer revised BOQ CUM Rate Schedule attached as Annexure-1 to this Corrigendum.
17	General		Since the storage yard of BHEL is located 12 km from plant gate and a security gate is presently being constructed by NTPC on the way to yard other than the plant gate and there is serous space constraint in and around the project space which is a fact and all the establishments are designated outside the plant boundary including batching plant and dumping yard and supposedly fabrication and bar bending yard:	a) Tender Conditions Shall Prevail. b) Tender Conditions Shall Prevail.

SL. NO.	Document/ Ref. Clause	Existing Clause	Bidder's Query	BHEL's Clarification
			a) The contract period needs to be reviewed and revised. kindly review and advise. b) The ceiling on PVC shall not be sufficient and needs to be reviewed and revised. kindly review and advise	
18	General		As per TCC Chapter II (Scope of work) S.no l, Scope includes Air-conditioned office 350 sqmt in MPH above control room. Air-conditioned offices are system requirement and shall be paid as per relevant BOQ Item. kindly confirm	Bidder understanding is correct.
19	BOQ Item: A111, 301, A302, A303, A2301, C2301, A2302, A2305 & B2305		Item Rate seems to disproportionate, request you to validate the same.	Bidder to refer revised BOQ CUM Rate Schedule attached as Annexure-1 to this Corrigendum.
20	BOQ Cum Rate Schedule		We request BHEL to kindly review and revise the BOQ weightage percentages allocated for the following major work items: a. Excavation Works b. Concrete Works c. Formwork - Item No: (301, 302, 303) d. Reinforcement- (A402) e. Structural Works-item no: (A2301, C2301)	Bidder to refer revised BOQ CUM Rate Schedule attached as Annexure-1 to this Corrigendum.

Corrigendum - 6 dated 23/07/2026 to CPC Tender No. BHEL/CPC/TLG/C_MPH_BLR_ESP_TG/27/033

SL. NO.	Document/ Ref. Clause	Existing Clause	Bidder's Query	BHEL's Clarification
21	General		It is understood from the site visit that the storage yard is located approximately 12 km from the project site, outside the plant premises. Kindly clarify whether BHEL will supply the following materials at the actual site location or whether we will need to collect them from the storage yard: Reinforcement Steel (TMT) Shop-fabricated materials Structural steel materials	For materials collected from BHEL Storage Yard (located approx. 12 km away) from NTPC Telangana Main Plant Gate, necessary cost of transportation shall be payable as per St No D2301 of BOQ Cum Rate Schedule.

Enclosure –

1) Annexure-1: Revised BOQ CUM Rate Schedule for Package 2A, Package 2B and Package 2C

2) Annexure-2: BG Format for Supplying Free Issue Material

Note:

1) **All other terms and conditions against this NIT shall remain unchanged.**
2) **This corrigendum is to be submitted duly signed and stamped along with the Techno-commercial bid (Part- I).**

for BHARAT HEAVY ELECTRICALS LTD
Sr. Manager/ SCT- CPC

ANNEXURE-1 TO CORRIGENDUM-5 (REVISED BOQ CUM RATE SCHEDULE)

PREAMBLE FOR BOQ CUM RATE SCHEDULE	
1	**Preamble for the Schedule of Quantities/BOQ Cum Rate Schedule:**
1.1	Details of the items in the BOQ Cum Rate Schedule shall be read in conjunction with the Corresponding Consultants/ Customer specifications, drawings and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
1.2	The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions, Drawings enclosed with these documents are only indicative giving some idea of the type of work involved. The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary at a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
1.3	Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
1.4	Unless specifically mentioned otherwise in the contract, the contractor shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour materials, levies , taxes , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
1.5	The rate shall also be inclusive of carrying out topography survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
1.6	The quantities of the various items mentioned in the BOQ cum Rate Schedule are approximate and may vary up to any extent or be deleted altogether. The overall variation in contract value on execution shall be dealt as per GCC. Contractor has to obtain prior approval of BHEL/ Customer before procurement of bought out items/ building materials.
1.7	BHEL Engineer's decision shall be final and binding on the contractors regarding clarification of items in BOQ cum Rate schedule with respect to the other sections of the contract.
1.8	In case of any discrepancy between item description, relevant specification, clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the contractor has quoted for the more stringent requirement.

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A2	Deployment of QA/QC Engineer B.E (Civil with min. 3 years of experience) or Diploma holders with min. 5 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent. Preference - Part time experience in QA/QC lab.	Man-Months	**60**	0.00	0.00	0.3073775669%
A3	Deployment manpower for QA/QC Testing Fresh B.E with min. 70% marks or Diploma holder with 3 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man-Months	**90**	0.00	0.00	0.3688530782%
A4	Deployment of Laboratory Technician Previous experience of working as a Lab. Assistant in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man-Months	**120**	0.00	0.00	0.2459020590%
A5	Erection, commissioning and load testing of 265T/ 25T (capacity of each crane) x 29 M span double girder EOT Cranes with common lifting beam of 447T capacity, including unloading, handling, transportation & storage at site, in-site transportation, assembly, rail fixing & alignment, DSL fixing, erection & commissioning, trial run at site, and carrying out performance guarantee/ Functional/ Demonstration tests at site and final handing over to end customer in flawless condition for project complete with all accessories for the total scope defined as per technical specifications, drawings, crane clearance diagram etc. as per directions of BHEL Engineer-In-Charge. (Erection & Commissioning of all items required for successful completion of work for all the units(#3,#4 & #5) shall be in the scope of this agency and included in this item. No separate payment in this regard shall be applicable.) **Payment Break up:** **i. Erection/ Alignment: 60%** **iii. Commissioning: 20%** **iii. Load testing, Trial run, Performance guarantee/ Functional/ Demonstration tests at site and final handing over to end customer: 20%** **Notes:** 1. Supervision of Erection & Commissioning (E&C) of above said cranes is in the scope of Crane manufacturer/ Supplier. E&C of cranes shall be carried out under expert supervision of the crane manufacturer/ Supplier. 2. Specification for Erection & Commissioning of 265T/25T Double Girder TG Hall EOT Cranes and Crane clearance diagram for TG hall EOT crane 265T/ 25T is enclosed with tender for contractor's reference purpose only. 3. Project specific Erection and Commissioning (E&C) procedure as submitted by the crane supplier shall be provided to the contractor during execution of contract and same shall be followed for erection and commissioning works.	Nos.	**1**	0.00	0.00	0.2716750512%
100	**EARTH WORK: Earth work in excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.**					
A101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	45389	0.00	0.00	0.1740652619%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	7794	0.00	0.00	0.0372881697%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1551	0.00	0.00	0.0093048420%
A102	Extra over ST No. A101, A103, A104, A105, A106 & B106 for dewatering of ground water by sump pump method as per IS 9759. Ground water table shall be lowered up to 1 m below the founding level to make the site workable for foundation construction till backfilling up to ground level. Mode of measurement shall be the quantity of excavation of soil including ash below ground water table to founding level of the footing.	CUM	76271	0.00	0.00	0.6367561041%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A103	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	45389	0.00	0.00	0.2585127652%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	15588	0.00	0.00	0.1065376276%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4653	0.00	0.00	0.0381616306%
A105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	30259	0.00	0.00	0.4928922425%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	27280	0.00	0.00	0.5334475372%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	12407	0.00	0.00	0.2911356420%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	742	0.00	0.00	0.0209048921%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	166	0.00	0.00	0.0053764701%
A106	Earth work in excavation in hard rock requiring chiselling including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	4539	0.00	0.00	0.0891026961%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	4092	0.00	0.00	0.0963934521%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1861	0.00	0.00	0.0526065145%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	111	0.00	0.00	0.0037652809%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	25	0.00	0.00	0.0009752417%
B106	Earth work in excavation in hard rock requiring chiselling (pneumatic rock breaker attachment with excavator machine etc but does not require manual chiselling or blasting) including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge for following depths below ground.					
a	Depth from ground level but not exceeding 2 m	CUM	25720	0.00	0.00	0.5048956475%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	23188	0.00	0.00	0.5462295617%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	10546	0.00	0.00	0.2981130046%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	631	0.00	0.00	0.0214044346%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	141	0.00	0.00	0.0055003630%
107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.					
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.					
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	73132	0.00	0.00	0.2860123555%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A109	Extra over ST No. A101 and A103 to A108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.					
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	248126	0.00	0.00	0.1224773401%
A111	Supplying and filling clean and well graded natural river sand (conforming to IS 383 with grading zone I to III) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	81143	0.00	0.00	7.2526653400%
112	Extra over item no. A101 for shoring and strutting in trenches including packing cavities (wherever required as instructed by engineer) all complete as per specification and as directed by engineer in charge.					
a	Upto depth of 2m	SQM	4103	0.00	0.00	0.0540593863%
b	Depth exceeding 2 m but not exceeding 4 m	SQM	373	0.00	0.00	0.0061466528%
200	**CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					
201	Concrete of grade **M7.5** (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	9908	0.00	0.00	1.5947387016%
202	Concrete of grade **M10** (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level)**. (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	71	0.00	0.00	0.0114277804%
203	Concrete of grade **M15** (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	107	0.00	0.00	0.0172221479%
204	Concrete of grade **M20** (1 part cement, 1.5 part sand, 3 parts of 10-20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224).	CUM	159	0.00	0.00	0.0252657798%
A205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTMC-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing **below finished ground floor level (FGFL) upto a depth of 10m from FGFL** (For depths greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224), for the following:					
b	M 25 Grade	CUM	57968	0.00	0.00	10.0411560630%
c	M30 Grade	CUM	599	0.00	0.00	0.1043040069%
A206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in superstructure for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTMC-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing **upto 10m level above FGFL (Finished Ground Floor Level)**					

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	(For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 225), for the following.					
b	M 25 Grade	CUM	11104	0.00	0.00	1.9807633196%
A207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in **machine foundations** for TG, Gas Turbine, ID/FD/PA fans, BFP, Mills, Crusher House, CHP-AHP civil works, FGD etc. at all elevations below/above finished ground floor level (FGFL) (except top decks supported over vibration isolation system, BFP deck and TG deck) but including TG foundation Columns, BFP foundation Columns with addition of suitable plasticizer conforming to IS 9103(latest) **or ASTM C494** to achieve a slump **in the range of 100 mm -150** mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing all complete.					
a	M 30 Grade	CUM	7029	0.00	0.00	1.3662141917%
b	M 35 Grade	CUM	3025	0.00	0.00	0.5907204730%
A208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) and top deck of BFP foundation at all levels including addition of suitable plastisizers conforming to IS9103 **or ASTM C494** to achieve a slump **in the range of 150 mm -180** mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, levelling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embedment's and temperature control of concrete. Payment terms – a) After casting 75%; b) After receipt of ultrasonic pulse velocity test report - 25%.	CUM				
a	M 30 Grade	CUM	833	0.00	0.00	0.2500586780%
b	M 35 Grade	CUM	333	0.00	0.00	0.1003806850%
B208	Providing and laying of **M50** grade of concrete as per IS:456 & Design Mix of concrete as per IS 10262-2009 by using suitable % of supplementary cementitious materials like Micro-silica conforming to IS:15388 / Micro fine-GGBFS conforming to IS:16714 along with OPC-43 grade cement as per IS-269-2015 [*The OPC-43 cement content shall not be more than 450 kg/cum of concrete as per IS:456*] for reinforced concrete works by using graded aggregate in top deck of all machine foundations supported / not supported on vibration isolation system (excluding supply and installation of vibration isolation system) and top deck of TG foundation at all levels including addition of suitable superplasticiser conforming to IS-9103 & ASTM C-494,Type-G category to achieve medium to high flow concrete as per EFNARC-specifications (*Slump flow by Abrams cone shall be 650 - 800 mm & T50 cm slump flow should be 2-5 sec*) as per manufacturer's recommendation, preparation of scheme for concreting, getting it approved by engineer in charge, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, levelling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate as per IS-2386, Part-VII & Part-VIII etc. all complete as per specification, drawing and instructions of engineer in charge, including ultra-sonic pulse velocity	CUM	2064	0.00	0.00	0.6238251506%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	(UPV) testing as directed by engineer in charge, rectification of the defects in concreting observed by UPV testing by cement/epoxy grout etc., but excluding formwork, staging, reinforcement, embedment's and temperature control of concrete. Payment terms – a) After casting 75% ; b) After receipt of ultrasonic pulse velocity (UPV) test report - 25%.					
A209	Extra over St. No. 205 to 208 for **controlling of temperature** of fresh concrete to less than **25 degree** centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	13285	0.00	0.00	0.7369735378%
210	Extra over ST Nos. 205 to 207 for conducting **UPV test** for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	1167	0.00	0.00	0.0356703077%
A211	Providing and **encasing of structural steel member** with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. **(Wire mesh to be paid separately)**					
b	M 25	CUM	1037	0.00	0.00	0.1669099751%
212	**Screed concrete** conforming to IS 456 with sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 225) or thickness, drains etc complete as per following.					
a	01:02:04	CUM	608	0.00	0.00	0.0978604290%
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in **precast works** like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transporting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc. complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.					
b	M25	CUM	531	0.00	0.00	0.1555905231%
A214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in **water retaining/conveying structures** including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate upto depth of 10m from finished ground floor level (FGFL), (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224). for following grades. Water tightness is to be ensured including structural grouting if required.					
b	M 30	CUM	3060	0.00	0.00	0.5764090262%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
215	Dismantling concrete work for all types of structures at all levels including stacking of serviceable material to a lead of 500 m and disposal of unserviceable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.					
a	Plain cement concrete of all grades	CUM	170	0.00	0.00	0.0082751727%
b	Reinforced cement concrete of all grades	CUM	417	0.00	0.00	0.0313977761%
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement	CUDM	2088	0.00	0.00	0.0072938771%
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross-sectional area of reinforcement cut.	SQCM	334	0.00	0.00	0.0001014557%
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	209	0.00	0.00	0.0017379230%
219	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	1775	0.00	0.00	0.0099073114%
222	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	710	0.00	0.00	0.0022645283%
225	Extra over item no. A206 and 212 for height above FGFL (Finished Ground Floor Level) as per following:					
(a)	Height exceeding 10m from FGFL but not exceeding 20m	CUM	1948	0.00	0.00	0.0341720511%
(b)	Height exceeding 20m from FGFL but not exceeding 30m	CUM	1779	0.00	0.00	0.0561328498%
(c)	Height exceeding 30m from FGFL but not exceeding 40m	CUM	1779	0.00	0.00	0.0748437997%
(d)	Height exceeding 40m from FGFL but not exceeding 50m	CUM	177	0.00	0.00	0.0086898426%
(e)	Height exceeding 50m from FGFL but not exceeding 60m	CUM	177	0.00	0.00	0.0093081454%
(f)	Height exceeding 60m from FGFL	CUM	177	0.00	0.00	0.0102423203%
300	**FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.**					
301	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams & slabs (for which scaffolding work not required for vertical support of bottom face of formwork), mass concrete, trenches, grade slab, paving etc. including chamfering of edges as per drawing, specification and instruction of engineer in charge.					
a	Upto Depth 10m From FGL	SQM	71744	0.00	0.00	1.9450193121%
b	Depth exceeding 10m From FGL	SQM	107	0.00	0.00	0.0031852239%
A302	Fairface form work with good quality water proof Plywood with film face of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing for all heights as per specification, drawing and instruction of engineer in charge.		0			
a	For Height Upto 20m from FGL	SQM	31323	0.00	0.00	1.0216370486%
b	For Height More Than 20m from FGL	SQM	213	0.00	0.00	0.0076832210%
A303	Fairface Formwork with good quality water proof Plywood with film face of minimum 18mm thickness and smooth surface for TG superstructure (above base raft level for columns, connected beams & TG Deck only) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights complete including chamfering of edges, deshuttering as per drawing, specification, and instruction of engineer in charge..	SQM	2667	0.00	0.00	0.6483491298%
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.					
a	Upto 150 mm depth	Each	533	0.00	0.00	0.0051202109%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	533	0.00	0.00	0.0083582889%
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	533	0.00	0.00	0.0146320651%
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	533	0.00	0.00	0.0226463083%
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	533	0.00	0.00	0.0324010184%
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	533	0.00	0.00	0.0426616782%
305	Extra over item no. 301 and A302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.					
a	Extra for Curve Shuttering for Item No. 301	SQM	533	0.00	0.00	0.0028940322%
400	**REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.**					
401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	2	0.00	0.00	0.0066110254%
A402	Transporting, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500D / Fe-550D confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. **(BHEL will supply Reinforcement Steel within the plant premises. In case, reinforcement steel is supplied at BHEL Storage Yard located approx. 12km outside the plant premises, the cost of transportation shall be paid as per St No D2301)**	MT	8562	0.00	0.00	4.4467011459%
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non-destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.					
a	12mm Reinforcement bar	Nos.	4	0.00	0.00	0.0000978106%
b	16mm Reinforcement bar	Nos.	4	0.00	0.00	0.0001587144%
c	20mm Reinforcement bar	Nos.	4	0.00	0.00	0.0002297942%
406	Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR or any other Grade confirming to IS:1786 including, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).					
a	12mm dia	Nos.	4	0.00	0.00	0.0000091128%
b	16mm dia	Nos.	4	0.00	0.00	0.0000097203%
c	20mm dia	Nos.	4	0.00	0.00	0.0000121504%
d	25mm dia	Nos.	4	0.00	0.00	0.0000179218%
e	28mm dia	Nos.	4	0.00	0.00	0.0000221745%
f	32mm dia	Nos.	4	0.00	0.00	0.0000279459%
g	36mm dia	Nos.	4	0.00	0.00	0.0000366030%
h	40mm dia	Nos.	4	0.00	0.00	0.0000490572%
407	Transportation from BHEL yard, straightening, cutting, bending, welding / binding in position of old cut piece TMT steel reinforcements confirming to IS:1786 including binding wire, labour for placing in concrete, chair and other misc. works complete all as per bar bending schedule and as directed by Engineer. [Old cut piece TMT Reinforcement steel will be issue by BHEL Store free of cost]	MT	34	0.00	0.00	0.0196177105%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A407	Providing lap/fillet welding of reinforcement bars of TMT steel of grade Fe-415 / 415D / 500 / 500D / 550 / 550D conforming to IS 1786 (latest) using metal arc welding including cleaning of bar surface, positioning, welding, grinding of weld bead and finishing, including cost of electrodes, equipment, labour, tools and plants etc. all complete as per IS 456 and IS 9417. Measurement shall be done for the number of joints welded comprising of weld deposition of 10d length (with max. 5d length at a stretch). Here, d is the diameter of the reinforcement bar. (BHEL to supply steel free of cost)					
a	20 dia of reinforcement bar	MT	1200	0.00	0.00	0.0099785050%
b	25 dia of reinforcement bar	MT	900	0.00	0.00	0.0088507973%
c	28 dia of reinforcement bar	MT	60	0.00	0.00	0.0006743465%
d	32 dia of reinforcement bar	MT	40	0.00	0.00	0.0005467674%
500	**Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					
502	Providing and laying underbed/topping grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, levelling etc all complete.	SQM	12154	0.00	0.00	0.0798372289%
A506	Providing and applying **two component, instant setting, 100% solids spray applied hybrid polyurea polyurethane liquid applied elastomeric seamless waterproofing membrane** meeting the requirements of LAM as per ASTM C836 and having excellent tensile strength of 15MPa (As per ASTM D412), elongation more than 450% (as per ASTM D 412), tear strength of 60 Kn/m (As per ASTM D1004/ASTM D624), adhesion to concrete of 2MPa (as per ASTM D 4541), abrasion resistance of 60mg loss (1 Kg,CS 10 Wheels,1000cycles - As per ASTM D4060), Shore A Hardness of 85 (As per ASTM D2240), resistance to hydrostatic pressure head of 7 Bar (As per ASTM D 5385/ DIN 16726), puncture resistance of 1000N (As per ASTM E154), water vapour permeability of 25 mg/m2/day (As per ASTM E96), Impact resistance of 17 N.m (As per ASTM D2794), Low temperature crack bridging ability up to 3.2mm (As per ASTM C 1305), dynamic crack bridging ability class B 3.2 (as per EN 1062-7 Method B-B3.2) with no crack observed in the coating after 20000 sinusoidal cycles, resistance to root (As per CENTS/14416) and fire resistance of class B (As per EN 13501-1).The coating shall be applied with a total consumption of 1.6 Kg/Sqm to achieve a **total system DFT of 1.5mm**, thereby satisfy the requirements of LAM as per ASTM C898 and shall be applied on the entire horizontal surface extending up to 300mm above the FFL on the vertical surface as per the methodology. The application system includes base preparation of cleaning, brushing and removal of flaky materials, grouting the porous area with cementitious grout, proper coving between slab and wall junctions and priming the surface with two component solvent free epoxy primer which is applied with a consumption of 200 grams per Sqm, followed by spray application of hybrid polyurea waterproofing coating. Protective geo textile fabric of minimum 150GSM over the entire membrane with proper overlaps shall be applied. The application of waterproofing treatment shall be carried by authorised applicator of approved Manufacturer of Waterproofing materials. Item includes surface preparation, polyscrim cloth /non woven geotextile fabric, polymerised mortar base preparation, etc. all complete as per specifications and directions of engineer in charge.	SQM	12154	0.00	0.00	0.5363888434%
A510	Providing and laying **cement concrete chequered and designed roof / floor tiles of 22 mm thickness** and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	12154	0.00	0.00	0.3327320350%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
B510	Providing and laying **cement concrete chequered roof / floor tiles of minimum 20 mm thickness** and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	3039	0.00	0.00	0.0786586953%
513	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	521	0.00	0.00	0.0011671585%
A514	Providing and applying **two component transparent polyamide cured epoxy sealer coating** (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by epoxy phenolic coating (solid by volume minimum 63%) of **minimum 400 micron DFT**. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams, wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	3917	0.00	0.00	0.0937943180%
B514	Providing and applying **Food grade two-component hi-build solvent-free polyurethane coating complying to FDA Title 21**, **Part 175.300** on the inner side of the water storage tanks having 100% volume solids, adhesion of concrete > 1.5 MPA (ASTM D4541).With the recommended primer applied by roller in one layer and with a Coverage 200 – 400 gms / m². Mix the 2 component PU and apply manually or by spray as per the manufacturer like Myk arment,laticrete or equivalent or equivalent make recommendation and apply a total thickness of minimum1 mm in 2 or more coats. The Products shall conform to have following properties. Thickness: 1000 Microns, Tensile strength: 9 MPA ASTM D 412 after 7 days of minimum 400 micron DFT over absolutely dry, clean and dust free surface of water retaining structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	266	0.00	0.00	0.0070657064%
A518	**Providing and laying water proofing treatment for wet areas like toilets, kitchen, pantry for sunken slab etc.** material with min.two coats of Acrylic Polymer Modified Flexible Cementitious Waterproofing Coating material like penetron SF-50 or equivalent make applied @ 0.70 to 0.8 0 Kg./m2 per coat.The First layer shall be of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. The Second layer shall be of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. The integral waterproofing coat applied (confirming to IS 2645) , while maintaining a gap of 4 to 8 hours between the coats all complete with water ponding test as per IS Code and as directed by engineer in charge**.**	SQM	666	0.00	0.00	0.0155421686%
A519	Providing and laying an angular fillet at junction of roof level and vertical wall / parapet wall of min.150mm x 150mm, cast in-situ concrete mix of 1:11/2:3 followed by 12mm thk 1:4 cement sand plaster. A latex based bonding agent should be added (10% by weight of cement) and also a glass cloth must be inserted while the angle fillet is being constructed etc. all complete as per specification & as directed by engineer in charge	RM	593	0.00	0.00	0.0137483872%
600	**JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.**					
A601	Supplying & installation of preformed bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumen etc. all complete.					
a	12 mm wide joints.	SQM	36	0.00	0.00	0.0008734609%
b	20 mm wide joints.	SQM	36	0.00	0.00	0.0010456926%
c	25 mm wide joints	SQM	1775	0.00	0.00	0.0748103102%
d	50 mm wide joints	SQM	355	0.00	0.00	0.0310833469%
603	Providing and applying polysulphide-based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves (10 mm thick baker rod to be paid separately):					

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
a	25mmX25mm groove size	RM	355	0.00	0.00	0.0086672125%
b	50mmX25mm groove size	RM	3550	0.00	0.00	0.1629651623%
c	20mmX25mm groove size	RM	213	0.00	0.00	0.0041602620%
604	Supplying and filling in position hot applied bitumen sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.					
a	10mm X 40mm	RM	178	0.00	0.00	0.0004731057%
b	12mm X 25mm	RM	888	0.00	0.00	0.0020230394%
c	20mmX25mm	RM	2131	0.00	0.00	0.0063922045%
605	Supplying and installation of commercial quality of expanded polystyrene products from reliable manufacturers as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.					
a	12 mm wide joints.	SQM	18	0.00	0.00	0.0000512594%
b	20 mm wide joints.	SQM	18	0.00	0.00	0.0000649286%
c	25 mm wide joints	SQM	36	0.00	0.00	0.0001489941%
d	50 mm wide joints	SQM	36	0.00	0.00	0.0003376289%
A605	Supply and installation of Polystyrene flexible board conforming to IS 4671 (type-1) having density 20 Kg/ Cu. as joint filler at joint of concrete including nailing, coating of both faces with coal tar pitch /bitumen etc. all complete.					
a	100 mm thick	SQM	3106	0.00	0.00	0.0672377652%
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)					
b	230 mm wide and 8 mm thick	RM	820	0.00	0.00	0.0154120060%
d	230 mm wide and 6 mm thick	RM	107	0.00	0.00	0.0009344407%
Ae	230 mm wide and 10 mm thick	RM	107	0.00	0.00	0.0014219749%
613	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	355	0.00	0.00	0.0035989825%
614	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	355	0.00	0.00	0.0081684771%
A615	Providing and fixing 300 mm wide Stainless steel strip having minimum thickness 3mm over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	355	0.00	0.00	0.0088154852%
A616	Providing and applying epoxy resin concrete bonding agents like Nito bond, Mykarment or equivalent in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete as per specification and direction of engineer-in-charge.	SQM	71	0.00	0.00	0.0006332307%
700	**MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.**					
A701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including manual cleaning with primer coat of chlorinated rubber-based zinc phosphate primer of Minimum 50 Micron Dry Film Thickness (DFT) welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. Payment Breakup: 1. On Supply & receipt of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40%	MT	297	0.00	0.00	1.2362287689%
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. Payment Breakup: 1. On Supply & receipt of materials at site - 70% 2. On completion of fixing, welding, etc. complete as per description/specification - 30%	MT	207	0.00	0.00	1.0630432880%
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.					

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	69	0.00	0.00	0.0734601365%
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc.	MT	34	0.00	0.00	0.0380515936%
704	Supplying, fabricating, erecting and installing following items in concrete/brick wall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.					
a	MS pipes of all diameters	kg	10791	0.00	0.00	0.0458901878%
b	PVC pipes / conduits of all diameters	kg	2060	0.00	0.00	0.0294882290%
c	UPVC pipes / conduits of all diameters	kg	355	0.00	0.00	0.0064026842%
d	Expansion anchor fasteners (galvanised) of HILTI make (HUD-1 Universal Fasteners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:					
i	8mm Dia	Nos	53	0.00	0.00	0.0001046452%
ii	10mm Dia	Nos	53	0.00	0.00	0.0001328189%
iii	12mm Dia	Nos	53	0.00	0.00	0.0001650174%
iv	14mm Dia	Nos	53	0.00	0.00	0.0002515510%
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:					
i	HST M8	Nos	5	0.00	0.00	0.0000529681%
ii	HST M10	Nos	5	0.00	0.00	0.0000732820%
iii	HST M12	Nos	5	0.00	0.00	0.0001323253%
iv	HST M16	Nos	5	0.00	0.00	0.0002319964%
v	HST M20	Nos	5	0.00	0.00	0.0004053293%
vi	HST M24	Nos	5	0.00	0.00	0.0008028748%
vii	HST M32	Nos	15	0.00	0.00	0.0032114991%
f	Chemical Expansion fasteners (galvanised)of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod, nuts, washers, chemicals all complete, etc:					
i	HAS-E5.8 M8	Nos	5	0.00	0.00	0.0001038478%
ii	HAS-E5.8 M10	Nos	5	0.00	0.00	0.0001264400%
iii	HAS-E5.8 M12	Nos	5	0.00	0.00	0.0001608028%
iv	HAS-E5.8 M16	Nos	5	0.00	0.00	0.0002731938%
v	HAS-E5.8 M20	Nos	5	0.00	0.00	0.0004250737%
vi	HAS-E5.8 M24	Nos	5	0.00	0.00	0.0005841678%
vii	HAS-E5.8 M25	Nos	15	0.00	0.00	0.0018255244%
viii	HAS-E5.8 M32	Nos	15	0.00	0.00	0.0023366712%
A704	Drilling & grouting of BHEL supplied Reinforcement bars into Existing RCC to a specified depth of with HILTI or equivalent chemical to fix the bars for future structural usage					
i	12 dia bars	RM	10	0.00	0.00	0.0001830152%
ii	16 dia bars	RM	10	0.00	0.00	0.0002168085%
iii	20 dia bars	RM	10	0.00	0.00	0.0002506017%
iv	25 dia bars	RM	10	0.00	0.00	0.0002927484%
v	28 dia bars	RM	10	0.00	0.00	0.0003181883%
vi	32 dia bars	RM	10	0.00	0.00	0.0003519815%
707	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete. Payment Breakup: 1. On Supply & receipt of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40	MT	200	0.00	0.00	0.7926076902%
800	**GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	36	0.00	0.00	0.0012808026%
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	4	0.00	0.00	0.0039964140%
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	4	0.00	0.00	0.0039510020%
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	57	0.00	0.00	0.1108331690%
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	15	0.00	0.00	0.0285378409%
806	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	14	0.00	0.00	0.0010440220%
900	**DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.**					
902	Providing and fixing **teak wood frame panel door shutter** as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	11	0.00	0.00	0.0034595568%
903	Providing, fitting and fixing **solid core flush door shutte**r as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldihyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	71	0.00	0.00	0.0198712359%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A904	Providing and fixing **single or double steel door shutters with 35mm (min) thick flush** design shutter as per **IS 4351** comprising of two outer sheets of **18 gauge(1.2mm min.) steel sheets** rigidly connected and reinforced inside with continuous vertical 20 gauge **(1.0 mm)** stiffeners, spot welded in position at not more than 150mm on centres including void filled with **mineral wool (density as per specification),** all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	378	0.00	0.00	0.1914494643%
A906	Providing and fixing electrically operated, self openable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	776	0.00	0.00	0.0213762026%
B906	Providing and fixing electrically operated, self operable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	137	0.00	0.00	0.0824326273%
A907	Providing and fixing Automatically closing **Fire proof steel flush insulated doors** along with frame of minimum 44mm thk flush shutter 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 center to center of approved make conforming to IS:3614-2021(latest revision), & CBRI tested- ISI marked for both Single leaf & Double leaf, comply IS/ISO 3008,satisfying LPA regulations and shall carry a unique label with certification/test report number, fire rating embossment, fixed at all elevations, with or without removable panels, with panic bar, panic trim, smoke seal with following fire rating using galvanised MS sheets for frames conforming to IS 277, made out of 1.6mm (16 SWG) for both frame and shutter, G.I. sheet (min. zinc coating 120 gsm), and leaves, mineral wool / PUF/ any other fire retardant insulation material filled with required density, mastic caulking and grouting the frame, reinforcing and insulating the shutters with fire retardant material, with panic devices, including all fittings, fire rated vision glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (min.94 kg/cum density) complete and shall be fire proof as per IS:3614, NBC requirements and as per specification. Fire Rated Door Shop drawings shall be submitted by the fabricator/manufacturer like Navair,4c Fire or equivalent for approval before execution. Minimum ratings shall be 2 Hrs. All hardware fittings shall comply to 2 Hours fire rating. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	244	0.00	0.00	0.2781256924%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)		0			
a	Openable type	SQM	53	0.00	0.00	0.0059768511%
b	fixed type	SQM	53	0.00	0.00	0.0038275996%
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections aluminium alloy grade 63400 including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallic protection etc. including preparation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid separately).Weight of aluminium section only shall be measure. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	11574	0.00	0.00	0.3339928654%
A909	Providing and fixing powder coated aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections of aluminium alloy grade 63400 including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, **powder coated in required shade with minimum thickness 50 microns** according to relevant IS , fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallic protection etc. including preparation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid separately).Weight of aluminium section only shall be measure. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	29092	0.00	0.00	0.8697490950%
A910	Providing, fabricating, designing, supplying and fixing of **Aluminium composite panel cladding (ACP)** in pan shape in solid, metallic colour, wooden colour, stone finish of approved shades made out of **4mm thick aluminium composite panel (weight of panel should be minimum 8.1 kg/sqmt) material consisting of 3mm thick FR grade Class A2 as per EN 13501**,mineral core sandwiched between two Aluminium sheets **(each 0.5mm thick BMT).**The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the “specification for coated coil for the exterior building application” issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to Class A2, s1,d0 as per EN-13501-1.The manufacturer must furnish the FPC and Certificate of conformity of EN13501-1 for Class A2,s1,d0 from the certifiers and Product must be supplied from the Certified Unit which has been mentioned on the FPC and COC. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high	SQM	4978	0.00	0.00	0.9933621522%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months' exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the copping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor or equivalent. **The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996.** The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS316 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware (festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc. all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel. The contractor shall provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturer of ACP. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :		0			
a	Over head hydraulic door closures	Each	28	0.00	0.00	0.0023442652%
b	Floor mounted Hydraulic door closers	Each	28	0.00	0.00	0.0048873411%
A912	Providing and fixing pressed steel frames (complying general requirements of IS 4531) fabricated from **1.6 mm thick** M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars, paintings etc all complete as per specifications. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	7777	0.00	0.00	0.0581725959%
A913	Providing and fixing in position **rolling** s**hutter of hot rolled double dipped galvanised steel** lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides of 75mm wide and 3mm thick(min.) and arrangements for inside and outside locking with push and pull operation including wire springs, top/hood cover 0.9mm thick (min.) , factory galvanized, primed & field painted, partly grilled (as required) with approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%		0			
b	Mechanically Operated	SQM	50	0.00	0.00	0.0088982597%
c	Electrically & Mechanically operated	SQM	288	0.00	0.00	0.0655136697%
A915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.		0			
ad	6 mm thick toughened glass	SQM	1869	0.00	0.00	0.1729568111%
bd	6 mm thick toughened heat reflecting tinted glass	SQM	444	0.00	0.00	0.0431420360%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
e	Providing and fixing of 3.0mm (min.) thick fire retardant and UV resistant polycarbonate clean toughed profile sheet of approved make conforming to IS 14434 in cladding and roof as per specification all complete.	SQM	374	0.00	0.00	0.0306981164%
h	6 mm thick clear toughened safety glass	SQM	50	0.00	0.00	0.0047652298%
ah	8 mm thick clear toughened glass	SQM	317	0.00	0.00	0.0381356242%
bh	10 mm thick toughened glass	SQM	258	0.00	0.00	0.0356935006%
j	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	632	0.00	0.00	0.1029951824%
ak	One outer 6mm thick tinted heat-reflecting toughened glass and one inner 6mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance) ≤ 62 %, SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) 0.2 ≤ 0.32 and U- Value 1.2 TO 2.0 W/MSq K, The properties of performance glass shall be as per detail design values as approved by engineer incharge. The glass to be used should be from the approved manufacturers Saint Gobain or equivalent of glass and should be free from distortion and thermal stress.	SQM	77	0.00	0.00	0.0936204546%
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	362	0.00	0.00	0.0043022241%
917	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	36	0.00	0.00	0.0023634021%
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	15	0.00	0.00	0.0021728309%
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	18	0.00	0.00	0.0038629117%
A920	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer & painting etc. all complete as per specification. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	43	0.00	0.00	0.0060263260%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A923	Providing and fixing Electrically operated sliding doors, self operable/closing, G.I. framed with fire resistant glass, with Fire resistant glazed door system shall be of uniform profile 50X50 mm with 14mm EI 20 glass for Interior application. Fire Resistant Glazed Door System shall have 120 minutes of integrity and radiation control (EW 120) with symmetrical (Bi-Directional) fire protection. The frames shall be cold rolled profiles as per EN standard EN 10327/ Indian Standard IS 513. The door frames are cold rolled from 1.6 mm steel sheet to form a profile of 50 mm x 50 mm on all sides. The door shutter shall have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The glass must be minimum 14mm clear,120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 38 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4. The shutters shall be fixed to the frame using Weld-on hinges of dimensions 179mm X 20mm. The profiles shall have groves to incorporate Fire Resistant gaskets. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel self tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 6 mm Calcium Silicate setting blocks. The door shall be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV) or equivalent. The inactive leaf (in case of double leaf only)shall be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a TUV audited facility. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The doors shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles) all complete as per specification. The door shall have water tightness level of 8A when tested as per EN 1027. Fire Rated Door shall be of Makes- Saintgobain,Navair,4C fire, Matrix or equivalent. all complete as per specification.(item includes the cost of glazing) Design, Shop drawings along with hardwares for the item with all construction and anchoring details, etc. Along with fire rating test reports shall be got approved before execution.(item includes the cost of glazing) Design, Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	27	0.00	0.00	0.0910287564%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A926	Providing & fixing Fully Glazed non load bearing fixed partition with 120 minutes Fire Rating, with valid fire test certificate from national or international lab with Partition Frame manufactured from cold rolled profiles of minimum 1.5 mm steel sheet pressed to form a profile of nominal size 50 mm x 50 mm on all sides & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of approved shade and color. The glass panels shall be Toughened interlayered minimum 14mm thick,Contraflam Lite, Non Wired, with 120 minute fire rating for integrity and radiation control (EW 120) and insulation (I 20),with 30minute full insulation, with a light transmission of 86% and a sound reduction of 38 dB and manufactured in Intertek & TUV audited facility and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested for 5000 hours of UV resistance as per EN ISO 12543-4.The glass shall provide bi-directional (symmetrical) fire protection. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape or as per the test evidence with cross section of 4 x 15 mm as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non- combustible 5 mm thick calcium silicate setting blocks. The installation shall be through trained and certified by Vetrotech certified Installer. The maximum glazing size shall be as per details design and drawings. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c.The partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026.The partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049.The partitions shall have water tightness level of 8A when tested as per EN 1027. The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120).Fire Rated partition shall be of Makes-Saintgobain,Navair,4C fire, Matrix or equivalent. all complete as per specification.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	124	0.00	0.00	0.1370301289%
A927	Providing & fixing minimum 30mm thick Hermetically sealed double glass (DGU) consisting of Fire resistant glass of minimum 14mm thick, clear, toughened, interlayered borosilicate glass,120 minutes fire rated for both integrity & radiation control ,remain transparent under both fire and non fire condition and 6mm thick toughened tinted glass with min.10mm air gap filled with inert gas. The partitions shall be 120 minutes Fire Rated, Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from cold rolled profiles Min.1.5 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of nominal size 50mm x 50 mm on all sides or suitable profile to accommodate the glass & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150 mm from the edges & every 500mm c/c .The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and color. The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30minute full insulation, Non Wired Toughened Interlayered glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 1(B)1 category of impact resistance as per EN 12600. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass shall be tested for 5000 hours of UV resistance as per EN ISO 12543-4.The glass shall provide bi-directional (symmetrical) fire protection. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape or as per the test evidence with cross section of 4 x 15 mm as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non- combustible	SQM	53	0.00	0.00	0.0575766237%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	5 mm thick calcium silicate setting blocks. The installation shall be through trained and certified by Vetrotech certified Installer. The maximum glazing size shall be as per details design and drawings. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c.The partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026.The partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049.The partitions shall have water tightness level of 8A when tested as per EN 1027.The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) all complete as per specification. Fire Rated partition shall be of Makes-Saintgobain,Navair, 4C Fire,Matrix or equivalent. all complete as per specification.(item includes the cost of glazing)Design,Shop drawings for the item with all construction and anchoring details along with fire rating test reports of complete system shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
A928	Providing and fixing of fully glazed steel fire door (single/ double leaf) with 120 minutes fire rating, of integrity and radiation control (EW 120) fabricated with min.1.5 mm thick galvanized steel sheet. The door frames are manufactured from cold rolled min.1.5 mm thk. galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 50 mm x 50 mm on all sides. The door shutter would have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The overall door opening shall be as per tested evidence and tested as per EN 1634-1 in an accredited international laboratory. The frame shall be finished with approved fire resistant primer or Powder coating of min. 30 micron as per approved shade. The sections have a special insulating infill. The test is conducted in IFTS as per EN 1634-1: 1999.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30 minute full insulation, Non Wired Toughened Interlayered glass, with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass should be compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a special ceramic tape with cross section of 5 x 20 mm as per the test evidence. The shutters should be fixed to the frame using weld-on hinges of dimensions 179mm X 20mm. The profiles shall have grooves to incorporate fire-resistant gaskets. The doors shall incorporate drop down seal at the bottom. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm or as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 5 mm thick calcium silicate setting blocks. The door should be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV), Concealed door closer or equivalent. The inactive leaf should be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a Intertek & TUV audited facility.The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The shutters should be fixed to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt. All complete as per specification and Design, Shop drawings, along with hardwares for the item with all construction and anchoring details along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	53	0.00	0.00	0.0712205988%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A929	Providing and fixing of frameless Mullion-less toughened Glass fixed partition on patch fittings, made of 12 mm thick, including fittings,hardware, fixing the fittings in floors, soffits, jams including necessary fixtures, screws, ss handels 1000mm long ,C Shape (both side),sealant wherever required and SS cover over patch fittings. etc all complete as per specification. The glass shall be firmly fixed through extruded aluminum extrusions on top, bottom and extreme sides. The glass panels shall be easily removed and refitted (during breakage) without using any special tools. The junction of glass to glass shall be properly secured using extruded PVC or sealant. Sealant shall be properly filled using molded rubber pattern /tool. Finish: anodized or powder coated as per architects drawings / specs. Safety film shall be applied on the glass to avoid shattering.The glass to be used should be from the approved manufacturers of glass Saint Gobain or equivalent make.The glass shall be distortion free and free from thermal stresses, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification, drawing and instructions of engineer in charge.Fabrication drawings should be prepared and approved by enginner incharge before commencement of work as per site condition. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	124	0.00	0.00	0.0640130769%
A930	Providing and fixing motorized curtain (operated with remote control also) mechanism at all heights.	SQM	107	0.00	0.00	0.1184244874%
A931	Providing and fixing SS Logo/Signature ICON of NTPC as per Guidelines of "Client" complete in all aspects. Logo to be fabricated in Stainless steel finish as per approved Pantone Shades of Client Guidelines along with proper provision of fixing arrangement of Logo on Partition Surface/Glass Surface/Acrylic Surface etc.Shop drawings for the item with all construction and anchoring details shall be got approved before execution, all complete as per specification and approved by Engineer incharge.	SQM	10	0.00	0.00	0.0064308982%
A932	Providing, fixing & Installation of manually operated, frameless Vertical Roller venetian blinds with premium fabric quality with 5% openness factor HARDWARE; TOP TUBE : Made of extruded aluminium with 38 mm Dia. and wall thickness of 1.2 mm with spline adoptable to accommodate. CLUTCH MECHANISM : Moulded plastic having self lubrication with Glass fibre reinforcement, having a minimum lifting capacity of 8 lbs weight capacity - 8 lbs Head adoptability - 38 mm OPERATING CHAIN : PLASTIC / STEEL ball chain adoptable to the clutch pitch for smooth operation of blinds. LOCKING MEMBER : Plastic/ steel stop locks for limit setting adoptable to the steel chain. Bonding (Fabric > Tube) : 30/36 mm wide double sided adhesive tape of 3M for strong holding capacity. SPRING BOOSTERS: provided as per the requirement Bottom Bar : aluminium extruded circular section with powder coated finish, having a Min. weight to be 365 gms / Rmt for a perfect fall of fabric to avoid warpage / floating. Ends are covered with end caps to give a perfect finish, installation at site at all height complete s per approved sample and instruction of engineer incharge.	SQM	160	0.00	0.00	0.0307607611%
A933	Providing and fixing dry wall partition up to ceiling height with 12.5 mm thick double skin fire rated Glass Reinforced Gyproc plaster board conforming to IS: 2095: Part 1:2023 (Board with BIS certification marks) Type F / EN520:2004-TYPE-F / ASTM C473/C1396-TYPE X, having thermal conductivity 0.24w/m°k., with 100 mm overall thickness of partition, consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia. meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia. bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the	SQM	53	0.00	0.00	0.0023749290%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.					
A934	Providing and fixing MS grills of approved design/pattern, with approved standard section for security purpose made of M.S. Flats / M.S. square bar of approved design shall be provided to suit security requirements made of M.S. Flats / M.S. square bar of approved design and fixed to the openings of windows/ventilator etc. with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	213	0.00	0.00	0.0011503428%
A935	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	160	0.00	0.00	0.0034957596%
A936	Providing and fixing Frameless single/ double leaf fully Glazed Doors (with etching film of 3M or equivalent make having Project / Purchaser's Logo and other design) on stainless steel patch fitting with minimum12mm thick toughened glass, SS handles (both side), Floor spring, door closure, locking arrangement, in required sizes as per detail drawings, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification, drawing and instructions of engineer in charge.	SQM	14	0.00	0.00	0.0072272829%
1000	**BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					
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.					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	532	0.00	0.00	0.1427939257%
A1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm upto 10m level above finished ground floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1014), places and position above plinth including raking out joints, curing, scaffolding etc complete but excluding plastering and painting.					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	3652	0.00	0.00	1.2377352820%
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	785	0.00	0.00	0.3286455562%
A1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm upto 10m above finished ground floor level (FGFL) (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1015), places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every fourth layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. (Reinforcement payment shall be made separately as per applicable BOQ in 400 Series)					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making).	SQM	1225	0.00	0.00	0.0508854395%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
B1003	Providing **factory made composite modular light weight aerated concrete panels,** (minimum 2 hours of fire rating) consisting of 2 fiber reinforced cement sheets (minimum 4 mm thick) on either side of light weight concrete core, having minimum compressive strength of 35 Kg / Cm2 and the density in the range of 700-900 Kg. / cu.m. of minimum 75 mm thickness, to provide external wall and internal partition at all levels, capable of sustaining wind pressure of 3.00 M height (H) within limiting deflection of span/250, fixed in position in tongue and groove jointing system by screwing the panels to top and bottom U channels, (channels minimum 1.25 mm thick and galvanised to grade 180 (minimum) as per IS : 277), fixing U profiled top and bottom channels to concrete / primary steel members which are placed at the maximum vertical spacing of 4.5m with the help of galvanised steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fibre glass tape (minimum 50 mm wide and minimum 0.5 mm thick) or by any other suitable material, so as to ensure that the entire construction done with the light weight aerated concrete panels are weather proof and panel surfaces are flush for painting, creating opening for doors / windows /ventilators / ducts / pipes/fans/AC etc. and finishing the opening face with the same U profiled galvanized steel channel which is used at the top and bottom. Payment Breakup: a) On Supply & receipt of panels at site - 50% b) On complete execution as per item description - 50%	SQM	4152	0.00	0.00	0.3943279354%
1005	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	44	0.00	0.00	0.0035785926%
A1006	Providing and encasing of structural steel member with masonary work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6 upto 10m level above finished ground floor level (FGFL) (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1014). Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	53	0.00	0.00	0.0148515695%
1007	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	36	0.00	0.00	0.0003772695%
1008	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	44	0.00	0.00	0.0041382698%
1009	Supply and placing in position mild steel wire fabric(Chicken Wire Mesh) 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	178	0.00	0.00	0.0014328343%
1010	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	44	0.00	0.00	0.0022353674%
A1013	Providing and laying Autoclave Areated concrete (AAC) blocks having dimensions of 625 mm x 250 mm. thickness ranging from 100 mm to 300 mm conforming to I.S. :2185(part III) in walls, chambers etc. at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing. The jointing cement sand mortar in the composition of 1: 6 (Cement: sand) shall be used with suitable plasticizer of Myk arment,laticrete or equivalent. Sand having modulus of fineness 1.1 shall be used. The horizontal and vertical joint thickness shall be approximately 10 mm. In case of partition walls (100 mm /125 mm thk.) the joint reinforcement i.e. 1 number of 6-8 mm diameter bars shall be placed at every alternate course to be anchored properly with the main structure. All other structural requirements like stiffening of masonry, joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in IS 6041 – 1985, IS - 1905. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	CUM	1927	0.00	0.00	0.4918360322%
A1014	Extra over item no. A1002, A1006 & A1013 for height above FGFL (Finished Ground Floor Level) as per following:					
a	Height exceeding 10m from FGFL but not exceeding 20m	CUM	914	0.00	0.00	0.0309564513%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
b	Height exceeding 20m from FGFL but not exceeding 30m	CUM	890	0.00	0.00	0.0542719801%
c	Height exceeding 30m from FGFL but not exceeding 40m	CUM	27	0.00	0.00	0.0021949294%
d	Height exceeding 40m from FGFL and above	CUM	18	0.00	0.00	0.0017072812%
A1015	Extra over item no. A1003 for height above FGFL (Finished Ground Floor Level) as per following:		0			
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	178	0.00	0.00	0.0003717259%
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	178	0.00	0.00	0.0006691066%
1100	**DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					
1101	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.					
b	50mm thick	SQM	532	0.00	0.00	0.0085244075%
1200	**PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					
A1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar as applicable upto 10m above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete					
a	Cement Mortar 1:6	SQM	20257	0.00	0.00	0.3745796752%
A1202	Providing 12mm thick plaster internal/external surfaces of building/boundary wall in cement mortar as applicable above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls finished to a smooth finish as per specification all complete.					
a	Cement Mortar 1:6	SQM	21539	0.00	0.00	0.3394014961%
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	16103	0.00	0.00	0.2286749088%
A1206	Extra over Item 1201 to 1202 for plastering on exterior walls over & above 10m height from FGFL.					
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	15865	0.00	0.00	0.0301196694%
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	15088	0.00	0.00	0.0515601657%
A1207	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	1065	0.00	0.00	0.0016983962%
1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, levelling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)					
A1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over 0.9 mm thick G.I. chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, levelling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	53	0.00	0.00	0.0015596160%
A1210	Providing drip course in cement mortar(1:3) in parapet, chajjas, window/door heads, architectural facias, fins,etc all complete with all labour, T&Ps as per specification, drawing and instruction of engineer.	RM	1187	0.00	0.00	0.0016225323%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
B1210	Providing mouldings and cornices 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 incharge.	RM	107	0.00	0.00	0.0002073335%
1300	**FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.**					
1301	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	2164	0.00	0.00	0.0035660473%
A1304	Two or more coats of **Low VOC (volatile organic compound) Acrylic distemper** of approved brand shade and as per manufacturers guidelines Nerolac / Berger /JK wall maxx,/Asian or equivalent, to give smooth, hard, durable & glossy even shade finish over a coat of primer over prepared plaster surface as per manufacturers guideline.All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	38174	0.00	0.00	0.1840820786%
A1305	Providing and applying **two or more coats of acrylic emulsion plastic paint with low VOC (volatile organic compound)** as per IS 15489,relevant latest code of approved brand, shade and manufacturer guidelines Nerolac / Berger /Sakarni /JK maxx /Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have **VOC content limit less than 50 grams per litre** All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	1766	0.00	0.00	0.0114261628%
B1305	Providing and applying two or more coats of **exterior quality Acrylic emulsion paint** with low VOC (volatile organic compound) as per IS 15489,relevant latest code of approved brand, shade and manufacturer guidelines Nerolac / Berger /Sakarni /JK maxx /Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have VOC content limit less than 50 grams per litre. All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge	SQM	1766	0.00	0.00	0.0114261628%
A1306	Providing and applying 2 or more coats of oil resistant paint(epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer 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	3521	0.00	0.00	0.0519260594%
A1317	Providing and applying 2 mm thick Acrylic wall putty (in Two Coats) over cement plastered surfaces in interior of building including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	57900	0.00	0.00	0.3051463288%
A1319	Providing and applying **two or more coats of weather coat paint of Premium Acrylic Smooth Paint with Silicone additives, over and including Texture base coat**, of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification. Textured base coat (Two or more coats applied @ 6.5Kg/10 sqm over and including priming coat of exterior primer applied @ 2.20Kg/10 sqm) of High Quality Exterior Acrylic Modified resin and special quality Silica Quartz with Trowel Texture as per selection of owner.	SQM	20257	0.00	0.00	0.1315253952%
1400	**FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	50050	0.00	0.00	1.2846679730%
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm 20 well graded) and top layer of 10mm thick metallic concrete of mix 1:2 (1 cement hardener mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete as per specification.	SQM	194	0.00	0.00	0.0042502812%
A1404	Providing and laying **interlocking M35 Grade concrete blocks confirming to IS:15658 in paving** with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing). **Kerb blocks or concrete block specified for various uses shall be precast blocks made of alkali-activated concrete /Geopolymer concrete as per IS:17452- 2020.** Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	80mm	SQM	3335	0.00	0.00	0.1375199744%
A1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 30mm thk of 1 cement : 1.5 sand : 3 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, moulding, cornice, granite polishing etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	2968	0.00	0.00	0.4814323396%
A1416	Providing and laying vitrified ceramic tiles of size 600x600/600X1200 with Digitally Glazed (Matt/glossy/metallic finish) in flooring, skirting approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Orientbell or equivalent, complete including underbed of 1:3 cement mortar 40 mm average thick underbed for flooring and 12 mm thick underbed with cement mortar 1:3 for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following..For Dado chemical mortar/adhesive to be used of approved manufacturer SP-35 of Laticrete or approved equivalent. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	9mm thick tiles In flooring	SQM	6838	0.00	0.00	0.4231070209%
c	7mm thick tiles In skirting and dado upto specific height	SQM	44	0.00	0.00	0.0022453915%
d	9mm thick tiles In skirting and dado upto specific height	SQM	147	0.00	0.00	0.0095470201%
B1416	Providing and laying Digitally glazed vitrified ceramic tiles of polished and matt variety of size 800x800/1000x1000 (Matt/glossy/metallic finish) in flooring, skirting of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Varmora, or equivalent , complete including 40mm average thick underbed of cement mortar 1:3 for flooring with neat cement slurry and 12mm thick underbed for dado/skirting with cement mortar 1:3 with neat cement slurry @3.3Kg/sqm etc.,3mm groove joints as per approved pattern pointed neatly with 3X4mm stainless epoxy grout SP- 100 of Laticrete, Luxture or approved equivalent in approved colour to match colour of tile etc. all complete for following. .For Dado chemical adhesive to be used of approved manufacturer SP-35 of laticrete or approved equivalent. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	9 to10 mm thick tiles In flooring.	SQM	5325	0.00	0.00	0.4388484137%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
c	9 to10 mm thick tiles In skirting and dado upto specific height.	SQM	213	0.00	0.00	0.0183453725%
A1417	Providing and laying Digitally glazed vitrified ceramic tiles (DGVT/PGVT) of matt finish of size 1000x1000mm/1200x1200 from reputed / approved manufacturer as Simpolo,Varmora or equivalent underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following. NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge) Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
b	9.00 mm (min.) thick tiles In flooring	SQM	1544	0.00	0.00	0.1290626145%
d	9.00 mm (min.) thick tiles In skirting and dado upto specific height	SQM	178	0.00	0.00	0.0154029689%
A1418	Providing and laying heavy duty Antiskid full body vitrified tiles 18-20 mm thick of size 600x600mm in flooring, of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo or equivalent ,complete including underbed of 1:3 cement mortar average 30mm thick for flooring with neat cement slurry @3.3Kg/sqm etc.all complete. Full body Vitrified Tiles shall be laid on properly laid levelled floor, with spacer/groove joints 3 to 5mm wide & 8 to 10mm deep & shall be filled with approved Epoxy Grout (stainless epoxy grout SP-100 of Laticrete) with matching shade mix of 0.70kg of organic coated filler of desired shade (0.10kg of hardener and 0.20kg of resin per kg). Full body Vitrified Tiles shall have water absorption less than 0.5%, Modulus of Rupture more than 38N/mm2, Breaking strength more than 7500N, Moh's scale more than 6, Abrasion resistance less than 144 mm3 and coefficient of friction more than 0.4. Vitrified Tiles shall generally conform to IS: 15622. All complete (including cost of epoxy grouting)as per engineer incharge. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	400X400 mm					
b	600X600 mm		5742	0.00	0.00	0.6680542537%
1419	Providing and laying G**ranite stone slab of 20mm thickness single piece** for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting, making corners, moulding and opening etc. all complete.	SQM	54	0.00	0.00	0.0116276922%
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 20mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	300X300 mm	SQM	528	0.00	0.00	0.0235365140%
A1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over suitable undercoat of adequate thickness (as recommended & applicable in accordance with clause 10 of IS 4443 - 2025). The tiles shall be applied with 6mm thick resin type bedding mortar **(epoxy resin or furane resin)** as per IS: 4443 & 4832 - Part 2 and including preparation of surface, application of suitable primer, pointing of joints of tiles with acid/ alkali resistant epoxy/ furane mortar up to a depth of 20mm, suitable top coat sealing as per IS 4443, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	20mm thick	SQM	300	0.00	0.00	0.0673890819%
b	38mm thick	SQM	3501	0.00	0.00	0.9046078659%
c	75mm thick	SQM	240	0.00	0.00	0.0713144162%
A1424	Providing & fixing chemical resistant **(AR)(Acid / Alkali) bricks (115mm thick)** conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by **18mm thick bituminastic** followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. Pointing the joints of bricks	SQM	522	0.00	0.00	0.1184666076%

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
B1424	Providing & fixing chemical resistant **(AR)(Acid / Alkali) bricks (75mm thick)** conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by **18mm thick bituminastic** followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	567	0.00	0.00	0.1001306310%
1427	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses: Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
a	5mm thick	SQM	835	0.00	0.00	0.0365240622%
b	7mm thick	SQM	71	0.00	0.00	0.0033994883%
A1431	Providing and fixing, laying min.15 mm thick Engineered wooden panel flooring and skirting of of reputed / approved manufacturer Greenlam,Boen,or equivalent multi-layered engineered wooden planks treated with VOC free lacquers and stains to provide extra strengthening, longevity and durability to planks. In all planks each layers are arranged at cross grain to each other for provide the balancing and stability to all three layers.Top layer of flooring finish with UV hardened , acryliclaquer,and made up of about 3.0 mm thick thermosetting re-polish able natural veneer setting on a core of about 10 mm thick pine wood that produce natural characteristic of wood with 2.0mm thick bottom ply based veneer balancing layer. The planks are joint to each other through plankloc system with glue less technology system and laid on 2mm thick dual barrier underlay protecting sheet having anti-bacterial, Anti-termite, fire-resistant, noise reduction, high wear and abrasion resistance, water resistant properties. The system includes all accessories like beading, Quadrant, Veneered/solid wood skirting, end profile etc.as per as per manufacturer specification and approved by Engineer Incharge. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	355	0.00	0.00	0.0448939633%
B1431	Providing and laying minimum 50 mm thick wooden flooring, consisting of 37 mm thick hardwood planks, finished with min. 11mm thick wooden flooring of greenlam,Boen,Bekker,robina or equivalent with min. plank size 193x1195mm (material class shall be 34 as per EN13329) of approved color and shade, over 2 mm expanded polystyrene foam and polythene sheet under laying all complete as per manufacturer specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	568	0.00	0.00	0.1423129258%
A1432	Providing and fixing **Rubber flooring over cement concrete floor min. 4mm thick with sheet size of 602 mm x 602 mm**. Rubber flooring shall conform to IS 809. Rubber flooring shall consist of 100% virgin elastomer reinforcing agents, resins, curing agents, anti-oxidants and pigments. It shall have excellent abrasion resistance and shall have class-I fire rating. It shall be acid & alkali resistant and shall be of anti static grade. In general, BS code shall apply for their technical characteristics. etc all complete as per specifications. (Cement concrete flooring to be paid separately). Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	509	0.00	0.00	0.0522814007%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A1433	Providing and fixing Glass **mossaic tiles at finished plain** wall surface of size 24 mm x 24 mm x 3.8 mm thick (minimum) in in decorative murals and pattern of approved colour, shade, design , fixing in customize design, as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the vertical wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in- Charge:. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	107	0.00	0.00	0.011857594 7%
A1434	Providing Dielectric epoxy based coating as per IS: 15652 shall be provided. The minimum dielectric strength for insulating floor (for all switchgear rooms up to and including 11 KV switchgear) shall be 45 KV ac rms (Class B as per Table-4 of IS-15652: 2006). The minimum thickness of insulation coating shall be 2000 microns for switchgear rooms up to 11 KV or as per the lab certificate fulfilling the dielectric strength requirement, whichever is higher. Dielectric test reports as per IS-2584 from a NABL accredited laboratory shall be submitted. Further, test reports for adhesion, tensile strength, scratch hardness, shore hardness, abrasion resistance shall be submitted in line with requirement of relevant national/international standard. The coating shall be high gloss finish and top color of coating shall be decided during the detailed engineering. Arc flash boundary and golden yellow safe boundary shall be provided. The item includes preparation and submission of procedure of approved manufacturer Mykarment or equivalent, of coating and conducting dielectric testing in a NABL accredited laboratory on a sample prepared during application at site, all complete as per specification.	SQM	4200	0.00	0.00	0.335565539 3%
A1435	Providing and laying Tactile, tac liner & tac button fully vitrified unglazed porcelain tile (for guiding band/s for visually impaired persons), size 300x300 15mm thick having Tile body 10mm thick plus profile 4.5mm thick. Low water absorption below 0.5%. MOR > 38NCM2, MOH Hardness >7 & Breaking strength > 4000 N. Tile confirming RNIB (The royal national institute for the blind, UK) , DETR (Department of the environment, transport and the regions, UK), & ADA (American With Disabilities Act, USA) , high stain and chemical resistance. Confirming IS 4457: 2007. Tile will be laid on 20mm thick cement & sand mortar with cement slurry having 4mm spacer & pointing with 3X4mm stainless epoxy grout / polymer based SP- 100 of Laticrete or approved equivalent in approved colour. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	16	0.00	0.00	0.000922976 1%
A1436	Providing, Designing & fixing Glass Reinforced Concrete (GRC) in approved design ,customized Screens,jalli, and Dome in shapes , size, texture, thickness, pattern and color fixing upto any height as per the drawing & approval, including necessary scaffoldings required for installation customized screens are from approved manufacturer Unistone or equivalent. Glass Reinforced Concrete (G.R.C) Screens shall be casted with 'Spray Mix' concrete design in approved size, pattern, thickness of 50mm on the outer Border & 25-30mm for Internal member and shade. The Screens should be made from ‘53 grade’ White Portland Cement manufactured by ‘JK Cement’ or 'Birla white', White Quartz fine graded sieved Silica Sand, Alkali Resistant Glass Fibre manufactured by 'NEG Japan, Owen Corning ‘Saint Gobain’ or equivalent, SuperPlasticizers manufactured by ‘Karochem’ or equivalent, Polymers manufactured by ‘Nova Polychem’ or equivalent and U.V resistant Synthetic inorganic pigments shall be used for pigmentation manufactured by ‘Phenochem industries or equivalent. The Screens casting shall take place with layering methodology using-Direct Power Spray machines. The GRC Screens flexural strength average L.O.P shall be above or equivalent to 6 N/mm2 & M.O.R shall be above or equivalent to 12 N/mm2 for tests done on 28 days cured samples. The fixing of Screens shall be done using ‘Dry fixing’ method onto structural support members i.e. R.C.C, Brick work, MS Framework. SS / MS Galvanized CLAMPS & PINS also if required fasteners to be used of Wurth, Hilti & Fischer or equivalent. All cast in socket to be epoxy primer coated. Electrodes to be used of advani, mangalam, esab or Victor brand or equivalent.GRC Customized Screens,dome shall be of Unistone make or equivalent.Installation to be done by specialized vendor in strict supervision if rerquired as per the manufacture's specification and as directed by Engineer.The	SQM	16	0.00	0.00	0.002632083 6%

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	colour, texture and pattern finish shall be as finalized by Architect engineer. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
1500	**ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.**					
A1501	**METAL DECK SHEET Type-I,** Designing, providing and fixing permanently **color coated galvanised MS troughed** metal sheet decking plate of approved colour **over roof purlins for cast-in-situ roof slab** as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum **0.8mm** with minimum trough depth of **44mm** (or as per design whiever is higher) of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to **the roof slab 40mm - 100mm thick** measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of **min 100 kg/sqm** (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minimum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahll be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 65 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. **Measurement of profile sheeting shall be of the plan area of roof/ floor covered by MS trough metal decking. (Shear anchor studs to be paid separately under BOQ Item No A1503 & B1503).** Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%					
a	Span Upto 1800mm	SQM	30970	0.00	0.00	2.0696361076%
b	Span Exceeding 1800mm and upto 2500 mm	SQM	3053	0.00	0.00	0.2040232172%
A1503	Providing and fixing shear anchor studs for fixing metal deck sheet to floor structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of required size manufactured from cold drawn round steel bars conforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification.	QUINTAL	102	0.00	0.00	0.1840031770%
A1505	Designing, providing and fixing **External/ Inner sheet of Permanent colour coated metal cladding / roofing** with troughed M.S. sheets of **minimum 0.5 mm** bare metal thickness of **min. grade G350 as per AS1397/grade SS340 class 4 or as per ASTM A792M/ grade S350 GD as per EN 10326 with zinc coating to class Z275 / aluminium zinc alloy coating to class AZ150** on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete **over columns, beams, bracings etc. at all levels.** The exposed face the sheet shall be permanently coated with s**ilicon modified polyster(SMP silicon content 30%-50%)** paint **or** super polyster paint of minimum **20 micron DFT** on exposed surface over **primer coat of minimum 5 micron** and minum **10 micron SMP** or **super polyester paint** over primer coat of **minimum 5 micron** on other face. SMP and polyster paint system sahll be of industrial finish of **product type 4** of AS/NZ2728.	SQM	21180	0.00	0.00	0.9746949031%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%					
1512	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.		0			
a)	For insulation in Sandwich Cladding	SQM	4711	0.00	0.00	0.2023092912%
b)	For underdeck insulation below RCC slabs	SQM	1331	0.00	0.00	0.0700456880%
A1519	Designing, providing and fixing **Factory made (Continous Line) prefabricated sandwiched Permanent colour coated metal cladding** comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as **plain** permanently colour coated for covering of exposed metal/concrete / brick surfaces with **insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m3 and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M 0k, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm,** sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet **0.5mm bare metal thickness (minimum)** of YS350 as per IS 15961 /grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyster (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of **industrial finish of product type 4** of AS/NZS 2728,troughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to **corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test**, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a **protected guard film** (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	4944	0.00	0.00	0.5429457457%
1600	**FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.**					
A1601	Providing and fixing **12.5 mm thick tapered/square edge glass fibre reinforced gypsum board false ceiling** conforming to IS : 2095 having fine texture finish, including providing and fixing of frame work at all levels, for all kind of work, consisting of light weight galvanised steel member (minimum 0.8 mm thick and galvanised as per IS: 277) having maximum grid size of 1200 mm x 600 mm for supporting panels of specified size, suspended from RCC structural steel or catwalkway grid above, with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm width along the perimeter of ceiling, supporting grid system (minimum 0.8 mm thick and galvanised as per IS: 277), expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete. (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer in charge.	SQM	1319	0.00	0.00	0.0615011564%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A1602	Providing, fixing and laying light weight **mineral fiber tile false ceiling** of minimum **thickness 15 mm** and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of **class 0/1 as per BS 476** with metal suspension grid system with galvanized Tees (silhouette T -profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc**. The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.**(All mineral fiber board to be used should be with **appropriate % of recycled content.** The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used). (Mineral wool insulation to be paid separately). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	947	0.00	0.00	0.0813719367%
A1603	Providing and fixing permanently colour coated a**luminium false ceiling** of approved colour of **Luxalon** Hunter douglas,Newage or approved equivalent with corrosion resistant aluminium alloy panels of size **600 mm x 600 mm and 0.6 mm thk**. with clip on torsion spring system ,perforation patterns in combination with built in nonwoven tissue, acoustic fleece for providing good acoustic properties and installed with silhouette T-Grid (of profile 24 mm) in same or contrasting colours or with 6 mm recess joints. The whole system shall be level adjusting arrangement and shall be suspended as per manufacturer. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 at minimum grid distance 1.2m c/c shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately.) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	1728	0.00	0.00	0.3525529906%
B1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon 150C,300C, of Hunter douglas,Newage or approved equivalent with corrosion resistant aluminium alloy (Al grade 3105,Al-Mg AA 5050) panels of of minimum thickness 0.6mm with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.55. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.(Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	888	0.00	0.00	0.1690939238%
A1604	Providing, fixing and laying permanently colour coated Designer metal aluminium false ceiling of approved colour with stove enamel finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in LINEAR, RECTANGULAR, SQUARE, CURVILINEAR , OPEN GRID type etc.as per detail engineering drawing , with corrosion resistance aluminium alloy (grade 3105) panels of minimum thickness 0.6mm,with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.7. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc.Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ) Payment Breakup: a) On Supply & receipt of material site - 60%	SQM	178	0.00	0.00	0.0316966964%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	b) On complete execution as per item description - 40%					
B1604	Providing, fixing and laying **permanently colour coated Designer metal Batten panel extruded aluminium false ceiling** of colour with stove enamel finish, powder coating in wooden finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in combination with demountable translucent stretch ceiling members etc.as per detail engineering drawing & manufacturer specification with corrosion resistance aluminium alloy (grade 3105,Al-Mg AA 5050) panels of minimum thickness MIN. 0.6mm.The battens shall have possibility of curvilinear arrangement. Batten ceiling of 1"x1" made up of extruded aluminium with "click-on system" and meet technical requirements of ASTM E84 having superior acoustics & highest health and safety standards The ceiling shall be installed using ceiling aluminium suspension system, etc. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	178	0.00	0.00	0.0373867717%
A1607	Providing and Fixing 12mm thick water resistant Calcium silicate board, gyproc or equivalent in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufaturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms – a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%	SQM	269	0.00	0.00	0.0240447269%
A1609	Providing , Design and fixing Aluminium **ceiling trap door in the false ceiling** matching with false ceiling material with min. 2mm thick powder coated inner and outer aluminium frame, corner fitting plate with stainless steel of 2mm thick fixture are with self-drilling screws and sealing strip of 6mm width and 6mm thick. Hinge operated through Push-lock mechanism.	SQM	36	0.00	0.00	0.0056129027%
1700	**RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.**					
1705	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	1243	0.00	0.00	0.0510195874%
1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	2518	0.00	0.00	0.1363375140%
1800	**MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A1801	Providing and Filling in trenches, plinths, area paving, **grade slab,** other underground structures, **etc.** with 63 mm downgraded hard stone aggregate as per IRC specification watering and compaction to minimum of 90% Standard Proctor density, including filling the interstices of stone aggregates with sand) in layers not exceeding 200 mm in thickness all complete **as per drawings/specifications.** Payment shall be made for the measurement of the volume of the compacted fill.	CUM	24393	0.00	0.00	2.2627095102%
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	120	0.00	0.00	0.0154097279%
1804	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	3772	0.00	0.00	0.0346598892%
1807	Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment). Drilling 12mm dia hole @300 c/c using material one liter per hole.	SQM	8950	0.00	0.00	0.0948128842%
1808	**Laying of earthing mats/rod**s including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	284	0.00	0.00	0.1805583905%
1809	Construction of below ground **earthing system test pits** as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	71	0.00	0.00	0.0344504848%
1810	Construction of **below ground earthing system test links** as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	71	0.00	0.00	0.0264356721%
1811	Construction of **below ground earthing system earth electrodes** as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items & steel shall be supplied by BHEL free of cost.)	NO	71	0.00	0.00	0.0024047134%
1812	Construction of **below ground earthing system - Earth connection and riser pig tails** as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	NO	71	0.00	0.00	0.0019652871%
1813	Providing **Earthing pit** as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	NO	71	0.00	0.00	0.1029929042%
1814	Construction of **below ground earthing system test pits** as per drawing/ sketches including brickwork, plaster, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	NO	71	0.00	0.00	0.0599884333%
A1825	Providing & Laying 400micron thick polythene sheet below the concrete base including materials, labour etc. complete as per drawing / direction of engineer.	SQM	355	0.00	0.00	0.0014003658%
1,827	**Anti weed chemical treatment of soil** with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterlization test certificate, performance guarantee of three years etc. all complete.	SQM	8950	0.00	0.00	0.0016991556%
A1837	Providing **50mm thick premix** carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M or equivalent to 8% to 10% by volume including compaction. Separation layer of one tack coat @ 1Kg/sqm shall be spray after first layer of 30mm and sand shall be sprayed on the final surface of 20mm @ 0.5 cum/100 sqm. etc. all complete as per specification and as guided by engineer-in-charge.	SQM	155	0.00	0.00	0.0047906696%
A1838	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celsius or A65 grade bitumen for softening point above 45 degree Celsius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	155	0.00	0.00	0.0040373457%
A1844	Providing and installation of Bio-Toilet near all the modular worker's sheds etc all complete as per specification.	NOS	2	0.00	0.00	0.0041642865%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A1845	Design, manufacturing, supply, delivery to site, and complete installation of a **field porta cabin of 40 feet by 10 feet length as per approved specifications and drawings**, including MS steel structural framework with primer and finish paint, insulated wall and roof sandwich panels, flooring with pre-laminated/plywood base and anti-slip vinyl/laminate finish, doors and windows with aluminium/glass frames, locks and accessories, furniture, concealed electrical wiring with sockets, switches, distribution board, lighting, fans, and earthing, ventilation/exhaust fans or small HVAC units where required, internal and external painting, and finishing works. The work shall also include transportation, loading, unloading, site assembly, alignment, anchoring, and miscellaneous accessories such as door stoppers, window fittings, sealants, and signage. All materials, workmanship, and installation shall conform to approved makes and specifications, and the work shall be executed as per the instructions and satisfaction of the Engineer-in-Charge, complete in all respects.	NOS.	1	0.00	0.00	0.0315668469%
A1847	Providing & fixing 200 dia HDPE pipe ISI mark 6 Kg/cm2 as per specification.	RM	1065	0.00	0.00	0.0795356428%
A1849	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views, panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete).Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder. The scope of bidder shall include coordination with respect to HVAC, electrical & firefighting systems & space requirements for electrical facilities in consultation with BHEL/customer. Engineering services of acoustic design, interior architecture, PA system, planning for firefighting system as per inputs provided by BHEL, external & internal finishes, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing,etc. are also included in this item. Any addition/changes in design as per customer requirement during detailed engineering stage, no extra payment is admissible. All design and drawings shall be submitted in soft and hard copies along with 3-D model. Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL Civil design wing, during detailed engineering stage for further sub-contracting of finishing works.	LS	1	0.00	0.00	0.1162497358%
A1850	Providing engineering services for Rain water harvesting including preparation of Rain water harvesting scheme, collection of required data, submitting to ground water board and getting approval from Customer and Ground water board at start & completion of work etc. complete as per statutory norms. The Engineering firm/person should be approved/accepted by ground water board and shall have similar experience of rain water harvesting for complete power plant. The scope shall include rain water harvesting for entire plant including Coal handling plant, ash handling plant inside plant boundary. The scope shall include preparation of rain water calculations, calculations for ground recharge/collection, economical design of rain water harvesting with different options under discussion with BHEL and submit design, drawings, report to Ground water board, obtain approval from Ground water board & Customer and on completion of work get the completion approval for rain water harvesting from Ground water board. This includes visits to site with/without ground water board officials and rate of this item shall include all expenses of consultancy, site visits etc. required from start of work till final obtaining of completion approval from ground water board. Payment for execution of rain water harvesting ponds & ground water recharge scheme shall be paid separately.	LS	1	0.00	0.00	0.0452138956%
2000	**FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.**					

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A2003	Supplying and erecting in position **2.4 m high PVC coated G.I. welded wire mesh fencing of minimum 4 mm diameter (including PVC coating) of mesh size 75mmX75mm including providing concertina of 600 mm height over chain link fencing**. The diameter of the steel wire for chain link fence (excluding PVC coating) shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. On every fourth post a clamping strip will be threaded through the links of chain link and bolted to the fence post with the help of security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be of high tensile serrated galvanised wire (HTSW) with wire diameter of 2.5mm stretched to 6m and attached to two strands of galvanised HTSSW of 2.5 mm diameter by means of clips at 1m intervals. These two HTSSW strands will be attached to the fence posts with 12 mm security fasteners etc. all complete. (Structural post shall be separately under ST No. 2007) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	511	0.00	0.00	0.0579077911%
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	MT	28	0.00	0.00	0.1220963496%
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	MT	26	0.00	0.00	0.1277382297%
2100	**WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck/body bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	NOS	199	0.00	0.00	0.0082133956%
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	199	0.00	0.00	0.0072991170%
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:					
a	25mm nominal bore.	NOS	99	0.00	0.00	0.0040860611%
b	50mm nominal bore.	NOS	99	0.00	0.00	0.0059016706%
A2104	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, confirming to IS 15778, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings, all pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:					
a	15 mm nominal bore.	RM	994	0.00	0.00	0.0187771576%
b	20 mm nominal bore.	RM	1988	0.00	0.00	0.0405566934%
c	25 mm nominal bore.	RM	1988	0.00	0.00	0.0475129743%
d	50 mm nominal bore.	RM	994	0.00	0.00	0.0435726870%
A2105	Providing and fixing UPVC pipes conforming to IS:13592 complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:					
a	15 mm nominal bore.	RM	994	0.00	0.00	0.0034496315%
b	20 mm nominal bore.	RM	994	0.00	0.00	0.0045995086%
c	25 mm nominal bore.	RM	2485	0.00	0.00	0.0143734644%
d	50 mm nominal bore.	RM	2485	0.00	0.00	0.0287469288%
e	75 mm nominal bore	RM	994	0.00	0.00	0.0172481573%
f	100 mm nominal bore	RM	497	0.00	0.00	0.0114987715%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A2106	Providing and fixing 900mmx600mmx6mm thk mirror edge mounted with teak beading and minimum 12 mm thick plywood backing or mounted with SS Studs from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	99	0.00	0.00	0.0078772921%
A2108	Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete.	NOS	99	0.00	0.00	0.0052626362%
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	199	0.00	0.00	0.0053572194%
2113	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia shower arm all complete.	NOS	199	0.00	0.00	0.0059314770%
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. A2105. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%					
a	500 litres capacity	NOS	20	0.00	0.00	0.0062878251%
b	1000 litres capacity	NOS	10	0.00	0.00	0.0062878251%
c	2000 litres capacity	NOS	5	0.00	0.00	0.0062878251%
d	5000 litres capacity	NOS	5	0.00	0.00	0.0157195627%
A2115	Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.	EACH	199	0.00	0.00	0.0073323549%
A2116	Providing and fixing metal storing cabinets 4(Four) Drawer Metal File Storage Cabinet with Central Locking System, Powder Coated (Approx size 54" X 18.5" X 27" Inch, Grey) all complete	EACH	99	0.00	0.00	0.0580544392%
A2117	Providing and fixing electric operated hand dryer with photo voltaic control.etc all complete..	EACH	99	0.00	0.00	0.0193527810%
A2118	Providing and fixing Recessed porcelain soap tray in shower area etc all complete.	EACH	199	0.00	0.00	0.0083305139%
A2119	Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	EACH	20	0.00	0.00	0.0015637029%
2200	**SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A2201	Supply and fixing glazed vitreous china Wash Basin 550 mm x 450 mm mounted over granite bevelled edge counter fitted with photovoltaic control system for water controls, bottle trap with two taps and all requisite items of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.					
b	Colored	EACH	99	0.00	0.00	0.0588024416%
A2202	Providing and fixing approved vitreous china laboratory basin/sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 32mm, 32mm CP brass waste coupling and 32mm CP brass bottle trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	10	0.00	0.00	0.0038968568%
A2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm with drain board of atleast 450 mm length with trap conforming to IS: 13983 including all fittings etc. all complete as per specification.	EACH	10	0.00	0.00	0.0035095632%
2204	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete as per specification, drawings and as per direction of Engineer-in-charge.					
b	Wall mounted	EACH	85	0.00	0.00	0.0582876829%
2205	Providing and fixing colour glazed vitreous Indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete.	EACH	99	0.00	0.00	0.0333801497%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
2206	Providing and fixing white flat back glazed vitreous china urinals of size 370x315x620 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	99	0.00	0.00	0.0960807011%
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.					
a	75mm dia pipes	RM	1988	0.00	0.00	0.0344963146%
b	110mm dia pipes	RM	1988	0.00	0.00	0.0545751323%
c	160mm dia pipes	RM	497	0.00	0.00	0.0188333271%
d	200mm dia pipes	RM	497	0.00	0.00	0.0274196636%
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%					
a	200mm dia	RM	1846	0.00	0.00	0.0925922492%
b	300mm dia	RM	71	0.00	0.00	0.0057287174%
c	450mm dia	RM	53	0.00	0.00	0.0054475879%
d	600mm dia	RM	44	0.00	0.00	0.0055583462%
e	900mm dia	RM	27	0.00	0.00	0.0046133499%
2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%					
a	150mm dia	RM	27	0.00	0.00	0.0010467178%
b	250mm dia	RM	27	0.00	0.00	0.0013522241%
c	300mm dia	RM	27	0.00	0.00	0.0015224055%
d	450mm dia	RM	27	0.00	0.00	0.0021344432%
e	500mm dia	RM	27	0.00	0.00	0.0025106875%
2210	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following: Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%					
a1	250mm dia	RM	27	0.00	0.00	0.0017712986%
a2	300mm dia	RM	27	0.00	0.00	0.0021255583%
a	450mm dia	RM	27	0.00	0.00	0.0031883374%
b	600mm dia	RM	27	0.00	0.00	0.0038516346%
c	900mm dia	RM	27	0.00	0.00	0.0052028335%
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	50	0.00	0.00	0.0328781868%
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	50	0.00	0.00	0.0339698231%
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:					
a	100x100mm P or S Type.	EACH	99	0.00	0.00	0.0095855160%
b	150x100mm P or S Type.	EACH	50	0.00	0.00	0.0052854182%
c	150x150mm P or S Type.	EACH	50	0.00	0.00	0.0059954564%
2214	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	398	0.00	0.00	0.0372360749%
2215	Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete.	EACH	99	0.00	0.00	0.0083112062%
2216	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	5	0.00	0.00	0.0110604590%
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	10	0.00	0.00	0.0308540084%
2218	Providing and fixing white viterous urinal partitions of size 675x325x85mm all complete.	EACH	82	0.00	0.00	0.0115356530%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	10	0.00	0.00	0.0081787290%
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitory works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.		0			
a	75mm dia pipes	RM	99	0.00	0.00	0.0055520812%
b	100mm dia pipes	RM	149	0.00	0.00	0.0108171855%
c	150mm dia	RM	149	0.00	0.00	0.0165369420%
d	200mm dia pipes	RM	50	0.00	0.00	0.0082204960%
e	250mm dia pipes	RM	50	0.00	0.00	0.0131527935%
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation, backfilling, concrete to be paid separately)					
a	75mm dia	RM	149	0.00	0.00	0.0089558601%
b	100mm dia	RM	249	0.00	0.00	0.0176515881%
c	150mm dia	RM	249	0.00	0.00	0.0272006529%
d	200mm dia	RM	99	0.00	0.00	0.0156112344%
e	250mm dia	RM	99	0.00	0.00	0.0253734246%
f	300mm dia	RM	99	0.00	0.00	0.0306661330%
2223	Providing and fixing vertical wall mounted water geysers/heaters(minimum 5 star rating) of required capacity including all connections & fittings(angular stop cock and brass connection pipes, etc.) all complete as per specification.		0			
a	15 Litres	Each	50	0.00	0.00	0.0259050040%
b	25 Litres	Each	50	0.00	0.00	0.0335464581%
2300	**STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A2301	**Erection of shop fabricated (field connections will be bolted type unless noted otherwise)** Mild structural steel, Medium and High Tensile structural steel with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading, transportation, unloading, collection of steel from stores inside the plant premises, alignment, true to line, level, plumb & dimension, temporary erection bolts & nuts, assembly, visual inspection, non destructive and special testing, rectification and correction of defective bolting works, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. The work shall be satisfactorily completed with required tightening of HSFG bolts. The shop fabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 meters and all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of structure but not for temporary erection bolts & nuts. High strength (HSFG) bolt including nuts and washer shall be paid separately. **(As applicable, Transportation of Shop Fabricated Structural Steel from BHEL Storage Yard located approx. 12 km outside the plant premises to NTPC Telangana Project Site shall be paid separately in St No D2301)** **Payment Breakup:-** **1) On Completion of erection-60%** **2) Balance on completion of alignment, bolt tightening etc.-40%**	MT	14792	0.00	0.00	10.6042904328%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
C2301	**Fabrication (Site Welded as per specification), transportation from fabrication yard and Erection of fabricated** (field connections will be welded type unless noted otherwise) Mild structural steel (Grade designation E250), Medium and High Tensile structural steel (Grade designation E350 or higher) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading, transportation, unloading, collection of steel, machining, welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating,testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. This item is excluding appointment of a separate agency, approved by BHEL, for connection design & preparation of fabrication drgs (Using 3D model software like Tekla or equivalent) preparation and submission of fabrication drgs in consultation with BHEL. (Rate shall be exclusive of surface preparation and primer) **(Raw structural steel is supplied at BHEL Storage Yard, the cost of transportation shall be paid as per St No D2301)** **Payment Breakup:-** **1) On Completion of Fabrication - 60%** **2) On Completion of erection-25%** **3) Balance on completion of alignment, welding etc.-15%** **Note:- BHEL shall provide land for fabrication yard free of cost inside the plant premises. In case, BHEL is unable to provide land free of cost to agency, the agency shall arrange land for fabrication yard outside the plant premises along with electricity & water in their scope and payment for the same shall be reimbursed as per St No C2301A**	MT	2661	0.00	0.00	3.4341618361%
C2301A	Extra over Item No C2301 for arranging land (outside the plant premises) for fabrication yard including electricity, water, transportation from fabrication yard to project premises, safety, security, etc all complete for carrying out fabrication works for NTPC Telangana Project work.	MT	2661	0.00	0.00	0.2742981124%
D2301	Transportation of Shop Fabricated Structural Steel, Reinforcement Steel and Structural Steel from the designated BHEL Material Storage Yard (located approximately 12 km outside the plant premises) to NTPC Telangana Project Site, including loading/unloading at the storage yard, transportation, handling, stacking, labour, supervision, tools & tackles, lifting equipment, vehicles, fuel, statutory permits, and all other consumables and incidental charges as directed by the Engineer-in-Charge (EIC). This item shall be applicable only for those materials stored at the designated BHEL Material Storage Yard outside the plant premises.	MT	13313	0.00	0.00	0.5598591152%
A2302	Extra over ST NO. B2301,C2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) & providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) of minimum 70 micron DFT . Zinc dust composition and properties shall be Type-II as per ASTM D520-00. The primer coat shall be applied over shot blast cleaned surface including touch-up painting etc all complete as per specification and direction of engineer-in-charge. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT	2661	0.00	0.00	0.4534829678%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A2305	Providing and applying intermediate coat of . two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT on steel surfaces already having primer coats, of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete.	MT	2661	0.00	0.00	0.267918612 7%
B2305	Providing and applying Top coat of two pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ∆E) and minimum 70 micron DFT on steel surfaces already having primer coats of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete.	MT	2661	0.00	0.00	0.267918612 7%
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Breakup: - a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/ specification - 40%					
a	Minimum galvanisation of 610 g/sqm	MT	231	0.00	0.00	1.108609402 2%
2307A	Supplying, fabrication, erection and alignment of factory made **Heavy Duty electroforged galvanised grating** units with mild steel having minimum hot dipped galvanisation conforming to IS:2062, finish blast cleaned to Sa 2 ½ finish or cleaned by acid pickling as per ISO 8501-1, in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/ specification - 40%					
a	**Minimum galvanisation of 610 g/sqm**	MT	154	0.00	0.00	0.739072934 8%
2311	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/ specification - 40%	KG	1496	0.00	0.00	0.008520458 6%
2312	Providing 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 etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/ specification - 40%	KG	194478	0.00	0.00	1.277487626 0%
A2312	Supply, fabrication, transportation and delivery at site of high strength structural bolts (of property class 10.9 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/ specification - 40%	KG	299197	0.00	0.00	2.068687194 3%
2313	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	18	0.00	0.00	0.008099675 6%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
2314	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:					
a	In erected position	MT	18	0.00	0.00	0.0205010436%
b	In fabrication yard	MT	18	0.00	0.00	0.0170427398%
2315	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members(weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	18	0.00	0.00	0.0129351497%
A2317	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner conforming to ASTM A240 S304 (Type 304) with Mill finish 2B cold rolled, annealed, descaled (pickled) and skin passed on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete.	MT	87	0.00	0.00	1.4522545348%
2318	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.					
a	20 Tons	EACH	4	0.00	0.00	0.0018069144%
b	25 Tons	EACH	2	0.00	0.00	0.0010478949%
c	40 Tons	EACH	6	0.00	0.00	0.0044433964%
d	50 Tons	EACH	8	0.00	0.00	0.0070800303%
e	60 Tons	EACH	8	0.00	0.00	0.0082352283%
f	100 Tons	EACH	3	0.00	0.00	0.0033770861%
2319	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	268	0.00	0.00	0.0475216809%
2320	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payment breakup - a) On receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	7	0.00	0.00	0.0803001207%
2322	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete. Payment breakup - a) On receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	113	0.00	0.00	0.6227556129%
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	13	0.00	0.00	0.0050051999%
2324	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	13	0.00	0.00	0.0006629175%
2325	Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	27	0.00	0.00	0.0005997355%
2326	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	27	0.00	0.00	0.0009636775%
2327	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	27	0.00	0.00	0.0010262141%
2328	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other structures including all	NO	5	0.00	0.00	0.0010652472%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
	materials, labour, electrodes etc complete (all materials to be supplied by the contractor).					
A2332	Fabrication, fitting and fixing of MS packer plates/shim plates of various thicknesses between structural steel column base plates and concrete pedestals/foundations, including material, cutting to size, edge preparation, handling, stacking, transportation, erection, levelling, alignment, welding/tack welding wherever required and all consumables, complete in accordance with approved drawings, technical specifications and Engineer-in-Charge's instructions. (BHEL shall supply structural steel free of cost)	MT	25	0.00	0.00	0.0266159915%
2400	**ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. All Works are to be carried out as per MORTH specifications. (Cement shall be provided by BHEL free of cost unless noted otherwise)**					
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete. (As per MORTH specifications)	CUM	6976	0.00	0.00	0.0321032656%
A2402	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using excavated soil within a lead upto1km soil and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete. (As per MORTH specifications)	CUM	2098	0.00	0.00	0.0082050802%
A2404	Providing & laying granular sub-base using close graded material conforming to specification, mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge. (As per MORTH specifications)	CUM	4406	0.00	0.00	0.4142239947%
A2406	Providing & Laying **water bound macadam sub base/base course** with stone aggregate 53 mm to 22.4 mm size stone conforming to **MORTH specification (Table 400-7) (IRC 19 -grading -3)** mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications, drawings and directions of Engineer-in-Charge. (As per MORTH specifications)	CUM	63	0.00	0.00	0.0064108477%
A2410	Providing & laying 40mm bitumen mastic wearing course over concrete pavement with industrial bitumen of grade 85/25 conforming to IS : 702, prepared by using mastic cooker and laid to required level and slope, including providing antiskid surface with bitumen fine grained hard stone chipping of approved size at the rate of 0.005 precoated cum per 10 sqm and at approximate spacing of 10 cm centre to centre in both directions, pressed into surface protruding 1 mm to 4 mm over mastic surface, including cleaning the surface, removal of debris etc. all complete as per specification, drawings and as per direction of engineer-in-charge. (Considering bitumen using 10.2% as per MORTH specification). (As per MORTH specifications)	SQM	14687	0.00	0.00	0.6476992888%
A2413	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (As per MORTH specifications)	RM	4103	0.00	0.00	0.1499989079%
B2413	Supplying and laying 300mmx250mmx150mm deep PCC block of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (As per MORTH specifications)	RM	373	0.00	0.00	0.0040908793%
A2415	Supply and laying 200mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. (As per MORTH specifications)	RM	1060	0.00	0.00	0.0531678137%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A2419	Providing and laying concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required), in road pavement using fully mechanized paver fitted with electronic sensors, provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing formwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	4773	0.00	0.00	0.8311235805%
A2421	Providing & laying concrete of grade M10 for dry lean concrete (DLC) with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (Cement will be supplied by BHEL free of cost as per TCC)	CUM	2266	0.00	0.00	0.3574098500%
B2421	Providing and laying of plain cement concrete of grade M15 using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete	CUM	935	0.00	0.00	0.1504926005%
A2422	Providing and fixing in position **MS dowel bar** reinforcement including surface painted with fusion bonded epoxy and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.	MT	59	0.00	0.00	0.1950252484%
A2423	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of **mild steel reinforcements** including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer.	MT	2	0.00	0.00	0.0066110254%
A2424	Providing & installation of **bitumen impregnated fibre board** of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumen etc. all complete as per specification, drawing and as directed by engineer.	RM	5968	0.00	0.00	0.0477411412%
A2425	Providing and filling in position **hot applied bitumen sealing compound (Grade A)** of specified thick(20mm x25 mm) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	5968	0.00	0.00	0.0179017721%
A2426	Providing and laying **debonding strip/tape** of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	5968	0.00	0.00	0.0123664959%
A2427	Providing & laying **80 mm thick precast interlocking concrete pavers of grade M35** of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	8812	0.00	0.00	0.3633661214%
A2428	Providing and laying **20mm thick sand layer** below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	8812	0.00	0.00	0.0242295943%
A2429	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15 etc all complete as per specification, drawing and as directed by Engineer.	SQM	14687	0.00	0.00	0.0091512268%
A2430	Supplying, fixing and removing formwork for concrete road pavement complete as per specification and as directed by the engineer-in-charge.	SQM	746	0.00	0.00	0.0202244704%
A2431	Providing and installation of Variable message signs including Cantilever type MS supports etc. all complete as per drawings, specifications, manufacturer's recommendations, indian standards.	EACH	37	0.00	0.00	0.0054967762%
2700	**RAIN WATER HARVESTING**					
2701	Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.	RM	75	0.00	0.00	0.0035778697%
2702	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	256	0.00	0.00	0.0089853559%
2703	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	52	0.00	0.00	0.0016574722%
2704	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	35	0.00	0.00	0.0048586359%
2705	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	86	0.00	0.00	0.0119383624%
2706	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	21	0.00	0.00	0.0029151815%
2707	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	69	0.00	0.00	0.0061673084%
2708	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	171	0.00	0.00	0.0023141260%
2709	Supply and laying 350mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	852	0.00	0.00	0.0802020443%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
2600	**LEVELING & GRADING: Levelling & grading works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
2601	Cutting of trees having girth more than 300 mm measured at a height of 1m above ground level including removal of roots, stacking the serviceable material like trunks, branches etc at specified area within the plant boundary and disposal of unserviceable parts/materials within a lead upto 1km etc all complete.		0			
a)	300mm upto 600mm girth	Nos	12	0.00	0.00	0.0002278197%
b)	601mm upto 1200mm girth	Nos	20	0.00	0.00	0.0017025729%
2602	Earth work in stripping of top soil upto a maximum depth of 0.30 m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for levelling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	Sq.m	1050	0.00	0.00	0.0010365799%
2603	Earth work in excavation upto any depth below ground level in all types of soil including ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	85446	0.00	0.00	0.3406600104%
2604	Earth work in excavation upto any depth below ground level in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc (but does not require chiselling or blasting) including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	13987	0.00	0.00	0.1035617321%
2606	Earth work in excavation upto any depth below ground level in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	29393	0.00	0.00	0.4732056166%
A2607	Earth work in excavation upto any depth below ground level in hard rock requiring chiselling (pneumatic rock breaker attachment with excavator machine etc but does not require manual chiselling or blasting) including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	29393	0.00	0.00	0.6346981937%
A2608	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil directly from excavation within a lead upto 1km and compacted as specified including dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	100	0.00	0.00	0.0002202258%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE OF PACKAGE 2A

Package 2A - Main Power Block Unit#3 (Powerhouse to ID Duct Area):- Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Establishment of Safety control room (in Porta cabin), TG Hall EOT Crane Erection & commissioning including fixing of rails & DSL, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified) **Note:** This Package shall also include providing lab equipment, QA/QC Engineers & support staff for centralized quality lab.

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	Weightage
			Pkg#2A	INR	INR	Pkg#2A
A2609	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock from compulsorily excavated earth available within a lead upto 1km and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	276	0.00	0.00	0.0013204433%
A2610	Extra over ST No. 2601 to 2606, A2607, A2608 & A2609 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1 km.					
b	Carriage for disposal of serviceable/unserviceable material/ earth with compaction as per specification	CUM	158142	0.00	0.00	0.0600464514%
A2612	Providing and laying 300mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	1308	0.00	0.00	0.1455175867%
2900	**AC & VENTILATION DUCT**					
2901	Supplying, Erection & Commissioning of finished GSS (zinc coating 275 GSM) AC & Ventilation ducting complete with hangers/ supports, Duct supporting structure, threaded rods, anchor fasteners, nuts for threaded rods, support angle, cleats , Consumable items like gaskets, sealant, adhesives, rivets, screws, nuts, bolts, washers etc. (including testing of ducting system by Smoke Test/Light Test) required for completion of leak proof Ducting system etc. with required fire dampers, motorised actuators , Grills/Diffusers ,Dampers & Thermal Insulation with Cladding of AC & exposed Ventilation Ducting all complete work as per technical specification and instruction of Engineer-In-Charge Payment Breakup: 1. On Supply & Receipt at site - 60% 2. On completion of erection, fixing, alignment, welding, etc. complete as per description/specification - 40% **Note: -Contractor shall ensure availability of commissioning supervisor at Site during commissioning of AC & Ventilation System. Also, Civil contractor to rectify/ address any leakages/malfunctioning in duct work without any commercial implication to BHEL**					
(a)*	18G.	SQM	3400	0.00	0.00	0.2581045577%
(b)*	20G.	SQM	4200	0.00	0.00	0.3157479564%
(c)*	22G.	SQM	6700	0.00	0.00	0.4839946238%
(d)*	24G.	SQM	5000	0.00	0.00	0.3575149162%
(e)*	Fire damper with auto resetting, limit switches, indication lamps etc.	SQM	67	0.00	0.00	0.0515883341%
(f)*	Motorized actuator with single phase power supply for the above fire damper.	NO*	85	0.00	0.00	0.0685718126%
(g)*	Supply air grill/diffuser with VCD (Extruded Aluminium).	SQM	67	0.00	0.00	0.0344003280%
(h)*	Return air grill/diffuser without VCD (Extruded Aluminium).	SQM	85	0.00	0.00	0.0374129422%
(i)*	MS Grills/Diffusers with VCD complete with fixing frames, nuts, bolts, gaskets, washers etc.	SQM	170	0.00	0.00	0.0290947954%
(j)*	MS Grills/Diffusers without VCD complete with fixing frames, nuts, bolts, gaskets, washers etc.	SQM	25	0.00	0.00	0.0036679355%
(k)*	GI Volume control dampers for Duct.	SQM	120	0.00	0.00	0.0528182714%
(l)*	Thermal insulation with cladding of AC (supply & return air) & exposed ventilation ducting with finish as per specification	SQM	12000	0.00	0.00	0.4573999149%
						100.0000000000%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A2	Deployment of QA/QC Engineer B.E (Civil with min. 3 years of experience) or Diploma holders with min. 5 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent. Preference - Part time experience in QA/QC lab.	Man-Months	**0**			0.0000000000%
A3	Deployment manpower for QA/QC Testing Fresh B.E with min. 70% marks or Diploma holder with 3 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man-Months	**0**			0.0000000000%
A4	Deployment of Laboratory Technician Previous experience of working as a Lab. Assistant in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man-Months	**0**			0.0000000000%
A5	Erection, commissioning and load testing of 265T/ 25T (capacity of each crane) x 29 M span double girder EOT Cranes with common lifting beam of 447T capacity, including unloading, handling, transportation & storage at site, in-site transportation, assembly, rail fixing & alignment, DSL fixing, erection & commissioning, trial run at site, and carrying out performance guarantee/ Functional/ Demonstration tests at site and final handing over to end customer in flawless condition for project complete with all accessories for the total scope defined as per technical specifications, drawings, crane clearance diagram etc. as per directions of BHEL Engineer-In-Charge. (Erection & Commissioning of all items required for successful completion of work for all the units(#3,#4 & #5) shall be in the scope of this agency and included in this item. No seperate payment in this regard shall be applicable.) **Payment Break up:** **i. Erection/ Alignment: 60%** **iii. Commissioning: 20%** **iii. Load testing, Trial run, Performance guarantee/ Functional/ Demonstration tests at site and final handing over to end customer: 20%** **Notes:** 1. Supervision of Erection & Commissioning (E&C) of above said cranes is in the scope of Crane manufacturer/ Supplier. E&C of cranes shall be carried out under expert supervision of the crane manufacturer/ Supplier. 2. Specification for Erection & Commissioning of 265T/25T Double Girder TG Hall EOT Cranes and Crane clearance diagram for TG hall EOT crane 265T/ 25T is enclosed with tender for contractor's reference purpose only. 3. Project specific Erection and Commissioning (E&C) procedure as submitted by the crane supplier shall be provided to the contractor during execution of contract and same shall be followed for erection and commissioning works.	Nos.	**0**			0.0000000000%
100	**EARTH WORK: Earth work in excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.**					
A101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	65699			0.2807022726%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	22902			0.1220702267%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1504			0.0100524222%
A102	Extra over ST No. A101, A103, A104, A105, A106 & B106 for dewatering of ground water by sump pump method as per IS 9759. Ground water table shall be lowered up to 1 m below the founding level to make the site workable for foundation construction till backfilling up to ground level. Mode of measurement shall be the quantity of excavation of soil including ash below ground water table to founding level of the footing.	CUM	81020			0.7535838655%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A103	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		0			
a	Depth from ground level but not exceeding 2 m	CUM	26280			0.1667563634%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	15268			0.1162573588%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4513			0.0412367928%
A105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		0			
a	Depth from ground level but not exceeding 2 m	CUM	19710			0.3576923996%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	19085			0.4157815261%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	12035			0.3146301703%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	742			0.0232902208%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	166			0.0059899461%
A106	Earth work in excavation in hard rock requiring chiselling including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		0			
a	Depth from ground level but not exceeding 2 m	CUM	2956			0.0646488447%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	2863			0.0751378792%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1805			0.0568454930%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	111			0.0041949139%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	25			0.0010865205%
B106	Earth work in excavation in hard rock requiring chiselling (pneumatic rock breaker attachment with excavator machine etc but does not require manual chiselling or blasting) including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge for following depths below ground.		0			
a	Depth from ground level but not exceeding 2 m	CUM	16753			0.3663944844%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	16222			0.4257375748%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	10230			0.3221769491%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	631			0.0238467630%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	141			0.0061279756%
107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.		0			
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
	manual/mechanical means, dressing etc all complete.for the following.					
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	64661			0.2817380064%
A109	Extra over ST No. A101 and A103 to A108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.		0			
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	217919			0.1198406747%
A111	Supplying and filling clean and well graded natural river sand (conforming to IS 383 with grading zone I to III) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	81133			8.0792265997%
112	Extra over item no. A101 for shoring and strutting in trenches including packing cavities (wherever required as instructed by engineer) all complete as per specification and as directed by engineer in charge.		0			
a	upto depth of 2m	SQM	1122			0.0164697925%
b	Depth exceeding 2 m but not exceeding 4 m	SQM	102			0.0018726460%
200	**CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
201	Concrete of grade **M7.5** (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	8462			1.5174075242%
202	Concrete of grade **M10** (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level)**. (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	71			0.0127317341%
203	Concrete of grade **M15** (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	107			0.0191872613%
204	Concrete of grade **M20** (1 part cement, 1.5 part sand, 3 parts of 10-20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete below finished floor level **upto depth of 10m from from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224).	CUM	133			0.0235457701%
A205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTMC-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing **below finished ground floor level (FGFL) upto a depth of 10m from FGFL** (For depths greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224), for the following:		0			
b	M 25 Grade	CUM	53246			10.2756206875%
c	M30 Grade	CUM	5			0.0009699958%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in superstructure for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTMC-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing **upto 10m level above FGFL (Finished Ground Floor Level)** (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 225), for the following.		0			
b	M 25 Grade	CUM	10769			2.1401991392%
A207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in **machine foundations** for TG, Gas Turbine, ID/FD/PA fans, BFP, Mills, Crusher House, CHP-AHP civil works, FGD,etc at all elevations below/above finished ground floor level (FGFL) (except top decks supported over vibration isolation system, BFP deck and TG deck) but including TG foundation Columns,BFP foundation Columns with addition of suitable plasticizer conforming to IS 9103(latest) **or ASTM C494** to achieve a slump ~~more than 125~~ **in the range of 100 mm -150** mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing all complete.		0			
a	M 30 Grade	CUM	7029			1.5221044951%
b	M 35 Grade	CUM	3025			0.6581239550%
A208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) and top deck of~~ TG &~~ BFP foundation at all levels including addition of suitable plastisizers conforming to IS9103 **or ASTM C494** to achieve a slump ~~more than 125~~ **in the range of 150 mm -180** mm in concrete as per manufacturers recommendation, preperation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic pulse velocity test report - 25%.	CUM	0			
a	M 30 Grade	CUM	833			0.2785913367%
b	M 35 Grade	CUM	333			0.1118345079%
B208	Providing and laying of **M50** grade of concrete as per IS:456 & Design Mix of concrete as per IS 10262-2009 by using suitable % of supplementary cementitious materials like Micro-silica conforming to IS:15388 / Micro fine-GGBFS conforming to IS:16714 along with OPC-43 grade cement as per IS-269-2015 [*The OPC-43 cement content shall not be more than 450 kg/cum of concrete as per IS:456*] for reinforced concrete works by using graded aggregate in top deck of all machine foundations supported / not supported on vibration isolation system (excluding supply and installation of vibration isolation system) and top deck of TG foundation at all levels including addition of suitable superplasticiser conforming to IS-9103 & ASTM C-494,Type-G category to achieve medium to high flow concrete as per EFNARC-specifications (*Slump flow by Abrams cone shall be 650 -800 mm & T50 cm slump flow should be 2-5 sec*) as per manufacturer's recommendation, preparation of scheme for concreting, getting it approved by engineer in charge, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, levelling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and	CUM	2064			0.6950060039%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
	submitting records of concreting, petrographic examination and potential reactivity of aggregate as per IS-2386, Part-VII & Part-VIII etc. all complete as per specification, drawing and instructions of engineer in charge, including ultra-sonic pulse velocity (UPV) testing as directed by engineer in charge, rectification of the defects in concreting observed by UPV testing by cement/epoxy grout etc., but excluding formwork, staging, reinforcement, embedments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic pulse velocity (UPV) test report - 25%.					
A209	Extra over St. No. 205 to 208 for **controlling of temperature** of fresh concrete to less than **25 degree** centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	13285			0.8210650581%
210	Extra over ST Nos. 205 to 207 for conducting **UPV test** for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	1167			0.0397404273%
A211	Providing and **encasing of structural steel member** with concrete using nominial aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. **(Wire mesh to be paid separately)**		0			
b	M 25	CUM	1037			0.1859550464%
212	**Screed concrete** conforming to IS 456 with sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 225) or thickness, drains etc complete as per following.		0			
a	01:02:04	CUM	550			0.0986261095%
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in **precast works** like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent preacast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.		0			
b	M25	CUM	230			0.0750830890%
A214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in **water retaining/conveying structures** including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate upto depth of 10m from finished ground floor level (FGFL), (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224). for following grades. Watertightness is to be ensured including structural grouting if required.		0			
b	M 30	CUM	1593			0.3343111015%
215	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.		0			
a	Plain cement concrete of all grades	CUM	170			0.0092194018%
b	Reinforced cement concrete of all grades	CUM	417			0.0349803834%
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	2088			0.0081261366%

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	334			0.0001130322%
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	209			0.0019362267%
219	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	1775			0.0110377738%
222	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	710			0.0025229197%
225	Extra over item no. A206 and 212 for height above FGFL (Finished Ground Floor Level) as per following:		0			
(a)	Height exceeding 10m from FGFL but not exceeding 20m	CUM	1948			0.0380712138%
(b)	Height exceeding 20m from FGFL but not exceeding 30m	CUM	1779			0.0625378242%
(c)	Height exceeding 30m from FGFL but not exceeding 40m	CUM	1779			0.0833837656%
(d)	Height exceeding 40m from FGFL but not exceeding 50m	CUM	177			0.0096813871%
(e)	Height exceeding 50m from FGFL but not exceeding 60m	CUM	177			0.0103702407%
(f)	Height exceeding 60m from FGFL	CUM	177			0.0114110085%
300	**FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.**		0			
301	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams & slabs (for which scaffolding work not required for vertical support of bottom face of formwork), mass concrete, trenches, grade slab, paving etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.		0			
a	Upto Depth 10m From FGL	SQM	56797			1.7154947940%
b	Depth exceeding 10m From FGL	SQM	107			0.0035486702%
A302	Fairface form work with good quality water proof Plywood with film face of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge.		0			
a	For Height Upto 20m from FGL	SQM	29251			1.0629177935%
b	For Height More Than 20m from FGL	SQM	213			0.0085599062%
A303	Fairface Formwork with good quality water proof Plywood with film face of minimum 18mm thickness and smooth surface for TG superstructure (above base raft level for columns, connected beams & TG Deck only) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights complete including chamfering of edges, deshuttering as per drawing,specification, and instruction of engineer in charge..	SQM	2667			0.7223282636%
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.		0			
a	Upto 150 mm depth	Each	533			0.0057044467%
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	533			0.0093120019%
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	533			0.0163016401%
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	533			0.0252303393%
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	533			0.0360980994%
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	533			0.0475295400%
305	Extra over item no. 301 and A302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.		0			
a	Extra for Curve Shuttering for Item No. 301	SQM	533			0.0032242525%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
400	**REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	2			0.0073653688%
A402	Transporting, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500D / Fe-550D confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. **(BHEL will supply Reinforcement Steel within the plant premises. In case, reinforcement steel is supplied at BHEL Storage Yard located approx 12km outside the plant premises, the cost of transportation shall be paid as per St No D2301)**	MT	7820			4.5247558282%
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcemnet bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall beconducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.		0			
a	12mm Reinforcement bar	Nos.	4			0.0001089712%
b	16mm Reinforcement bar	Nos.	4			0.0001768244%
c	20mm Reinforcement bar	Nos.	4			0.0002560146%
406	Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR or any other Grade confirming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).		0			
a	12mm dia	Nos.	4			0.0000101526%
b	16mm dia	Nos.	4			0.0000108294%
c	20mm dia	Nos.	4			0.0000135368%
d	25mm dia	Nos.	4			0.0000199668%
e	28mm dia	Nos.	4			0.0000247046%
f	32mm dia	Nos.	4			0.0000311346%
g	36mm dia	Nos.	4			0.0000407796%
h	40mm dia	Nos.	4			0.0000546548%
407	Transportation from BHEL yard, straightening, cutting, bending, welding / binding in position of old cut piece TMT steel reinforcements confirming to IS:1786 including binding wire, labour for placing in concrete, chair and other misc. works complete all as per bar bending schedule and as directed by Engineer. [Old cut piece TMT Reinforcement steel will be issue by BHEL Store free of cost]	MT	34			0.0218561669%
A407	Providing lap/fillet welding of reinforcement bars of TMT steel of grade Fe-415 / 415D / 500 / 500D / 550 / 550D conforming to IS 1786 (latest) using metal arc welding including cleaning of bar surface, positioning, welding, grinding of weld bead and finishing, including cost of electrodes, equipment, labour, tools and plants etc. all complete as per IS 456 and IS 9417. Measurement shall be done for the number of joints welded comprising of weld deposition of 10d length (with max. 5d length at a stretch). Here, d is the diameter of the reinforcement bar. (BHEL to supply steel free of cost)		0			
a	20 dia of reinforcement bar	MT	1200			0.0111170909%
b	25 dia of reinforcement bar	MT	900			0.0098607073%

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
c	28 dia of reinforcement bar	MT	60			0.0007512920%
d	32 dia of reinforcement bar	MT	40			0.0006091557%
500	**Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
502	Providing and laying underbed/topping grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.	SQM	10994			0.0804577033%
A506	Providing and applying **two component, instant setting, 100% solids spray applied hybrid polyurea polyurethane liquid applied elastomeric seamless waterproofing membrane** meeting the requirements of LAM as per ASTM C836 and having excellent tensile strength of 15MPa (As per ASTM D412), elongation more than 450% (as per ASTM D 412), tear strength of 60 Kn/m (As per ASTM D1004/ASTM D624), adhesion to concrete of 2MPa (as per ASTM D 4541), abrasion resistance of 60mg loss (1 Kg,CS 10 Wheels,1000cycles - As per ASTM D4060), Shore A Hardness of 85 (As per ASTM D2240), resistance to hydrostatic pressure head of 7 Bar (As per ASTM D 5385/ DIN 16726), puncture resistance of 1000N (As per ASTM E154), water vapour permeability of 25 mg/m2/day (As per ASTM E96), Impact resistance of 17 N.m (As per ASTM D2794), Low temperature crack bridging ability up to 3.2mm (As per ASTM C 1305), dynamic crack bridging ability class B 3.2 (as per EN 1062-7 Method B- B3.2) with no crack observed in the coating after 20000 sinusoidal cycles, resistance to root (As per CENTS/14416) and fire resistance of class B (As per EN 13501-1).The coating shall be applied with a total consumption of 1.6 Kg/Sqm to achieve a **total system DFT of 1.5mm**, thereby satisfy the requirements of LAM as per ASTM C898 and shall be applied on the entire horizontal surface extending up to 300mm above the FFL on the vertical surface as per the methodology. The application system includes base preparation of cleaning, brushing and removal of flaky materials, grouting the porous area with cementitious grout, proper coving between slab and wall junctions and priming the surface with two component solvent free epoxy primer which is applied with a consumption of 200 grams per Sqm, followed by spray application of hybrid polyurea waterproofing coating. Protective geo textile fabric of minimum 150GSM over the entire membrane with proper overlaps shall be applied. The application of waterproofing treatment shall be carried by authorised applicator of approved Manufacturer of Waterproofing materials. Item includes surface preparation, polyscrim cloth /non woven geotextile fabric, polymerised mortar base preparation, etc. all complete as per specifications and directions of engineer in charge.	SQM	10994			0.5405575194%
A510	Providing and laying **cement concrete chequered and designed roof / floor tiles of 22 mm thickness** and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	10994			0.3353179427%
B510	Providing and laying **cement concrete chequered roof / floor tiles of minimum 20 mm thickness** and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	2749			0.0792713865%
513	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	521			0.0013003358%

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
A514	Providing and applying **two component transparent polyamide cured epoxy sealer coating** (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by epoxy phenolic coating (solid by volume minimum 63%) of **minimum 400 micron DFT**. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams,wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	1873			0.0499673609%
B514	Providing and applying **Food grade two-component hi-build solvent-free polyurethane coating complying to FDA Ttitle 21**, **Part 175.300** on the inner side of the water storage tanks having 100% volume solids, adhesion of concrete > 1.5 Mpa (ASTM D4541).With the recommended primer applied by roller in one layer and with a Coverage 200 – 400 gms / m². Mix the 2 component PU and apply manually or by spray as per the manufacturer like Myk arment,laticrete or equivalent or equivalent makerecommendation and apply a total thickness of minimum1 mm in 2 or more coats. The Products shall conform to have following properties. Thickness: 1000 Microns, Tensile strength: 9 Mpa ASTM D 412 after 7 days of minimum 400 micron DFT over absolutely dry, clean and dust free surafe of water retaining structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	266			0.0078719307%
A518	**Providing and laying water proofing treatment for wet areas like toilets,kitchen,pantry for sunken slab etc.**material with min.two coats of Acrylic Polymer Modified Flexible Cementitious Waterproofing Coating material like penetron SF-50 or equivalent make applied @ 0.70 to 0.8 0 Kg./m2 per coat .The First layer shall be of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm.The Second layer shall be of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm.The integral waterproofing coat applied (confirming to IS 2645) , while maintaining a gap of 4 to 8 hours between the coats all complete with water ponding test as per IS Code and as directed by engineer in charge**.**	SQM	666			0.0173155899%
A519	Providing and laying an angular fillet at junction of roof level and vertical wall / parapet wall of min.150mm x 150mm, cast in-situ concrete mix of 1:11/2:3 followed by 12mm thk 1:4 cement sand plaster. A latex based bonding agent should be added (10% by weight of cement) and also a glass cloth must be inserted while the angle fillet is being constructed etc. all complete as per specification & as directed by engineer in charge	RM	415			0.0107194088%
600	**JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A601	Supplying & installation of preformed bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.		0			
a	12 mm wide joints.	SQM	36			0.0009731262%
b	20 mm wide joints.	SQM	36			0.0011650102%
c	25 mm wide joints	SQM	1775			0.0833464549%
d	50 mm wide joints	SQM	355			0.0346300766%
603	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves (10 mm thick baker rod to be paid separatly):		0			
a	25mmX25mm groove size	RM	355			0.0096561749%
b	50mmX25mm groove size	RM	3550			0.1815601152%
c	20mmX25mm groove size	RM	213			0.0046349639%
604	Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.		0			
a	10mm X 40mm	RM	178			0.0005270889%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
b	12mm X 25mm	RM	888			0.0022538760%
c	20mmX25mm	RM	2131			0.0071215797%
605	Supplying and installation of commercial quality of expanded polystyrene products from reliable manufacturers as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.		0			
a	12 mm wide joints.	SQM	18			0.0000571083%
b	20 mm wide joints.	SQM	18			0.0000723372%
c	25 mm wide joints	SQM	36			0.0001659949%
d	50 mm wide joints	SQM	36			0.0003761536%
A605	Supply and installation of Polystyrene flexible board conforming to IS 4671 (type-1) having density 20 Kg/ Cu. as joint filler at joint of concrete including nailing, coating of both faces with coal tar pitch /bitumen etc. all complete.		0			
a	100 mm thick	SQM	3106			0.0749098532%
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)		0			
b	230 mm wide and 8 mm thick	RM	709			0.0148462657%
d	230 mm wide and 6 mm thick	RM	107			0.0010410640%
Ae	230 mm wide and 10 mm thick	RM	107			0.0015842278%
613	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	355			0.0040096403%
614	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	355			0.0091005318%
A615	Providing and fixing 300 mm wide Stainless steel strip having minimum thickness 3mm over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	355			0.0098213660%
A616	Providing and applying epoxy resin concrete bonding agents like Nito bond, Mykarment or equivalent in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete as per specification and direction of engineer-in-charge.	SQM	71			0.0007054848%
700	**MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including manual cleaning with primer coat of chlorinated rubber based zinc phosphate primer of Minimum 50 Micron Dry Film Thickness (DFT) welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. Payment Breakup: 1. On Supply & reciept of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40%	MT	288			1.3355512578%
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. Payment Breakup: 1. On Supply & reciept of materials at site - 70% 2. On completion of fixing, welding, etc. complete as per description/specification - 30%	MT	207			1.1843406231%
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.		0			
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	69			0.0818422211%
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	34			0.0423934271%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
704	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffoling, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.		0			
a	MS pipes of all diameters	kg	10791			0.0511264350%
b	PVC pipes / conduits of all diameters	kg	2060			0.0328529495%
c	UPVC pipes / conduits of all diameters	kg	355			0.0071332551%
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:		0			
i	8mm Dia	Nos	53			0.0001165856%
ii	10mm Dia	Nos	53			0.0001479741%
iii	12mm Dia	Nos	53			0.0001838466%
iv	14mm Dia	Nos	53			0.0002802539%
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:		0			
i	HST M8	Nos	5			0.0000590120%
ii	HST M10	Nos	5			0.0000816438%
iii	HST M12	Nos	5			0.0001474241%
iv	HST M16	Nos	5			0.0002584681%
v	HST M20	Nos	5			0.0004515789%
vi	HST M24	Nos	5			0.0008944859%
vii	HST M32	Nos	15			0.0035779435%
f	Chemical Expansion fasteners (galvanised)of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc:		0			
i	HAS-E5.8 M8	Nos	5			0.0001156973%
ii	HAS-E5.8 M10	Nos	5			0.0001408672%
iii	HAS-E5.8 M12	Nos	5			0.0001791510%
iv	HAS-E5.8 M16	Nos	5			0.0003043663%
v	HAS-E5.8 M20	Nos	5			0.0004735762%
vi	HAS-E5.8 M24	Nos	5			0.0006508236%
vii	HAS-E5.8 M25	Nos	15			0.0020338238%
viii	HAS-E5.8 M32	Nos	15			0.0026032944%
A704	Drilling & grouting of BHEL supplied Reinforcement bars into Existing RCC to a specified depth of with HILTI or equivalent chemical to fix the bars for future structural usage		0			
i	12 dia bars	RM	10			0.0002038979%
ii	16 dia bars	RM	10			0.0002415471%
iii	20 dia bars	RM	10			0.0002791963%
iv	25 dia bars	RM	10			0.0003261521%
v	28 dia bars	RM	10			0.0003544948%
vi	32 dia bars	RM	10			0.0003921440%
707	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete. Payment Breakup: 1. On Supply & reciept of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40	MT	200			0.8830472816%
800	**GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	36			0.0014269471%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	4			0.0044524203%
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	4			0.0044018265%
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	56			0.1213133508%
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	15			0.0317941185%
806	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	14			0.0011631489%
900	**DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
902	Providing and fixing **teak wood frame panel door shutter** as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preperation of working drawings,godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	11			0.0038543056%
903	Providing, fitting and fixing **solid core flush door shutte**r as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldihyde synthetic resin, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anoidised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	71			0.0221386205%
A904	Providing and fixing **single or double steel door shutters with 35mm (min) thick flush** design shutter as per **IS 4351** comprising of two outer sheets of **18 gauge(1.2mm min.) steel sheets** rigidly connected and reinforced inside with continuous vertical 20 gauge **(1.0 mm)** stiffeners, spot welded in position at not more than 150mm on centres including void filled with **mineral wool (density as per specification),** all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all	SQM	347			0.1958021727%

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
	complete.Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
A906	Providing and fixing electrically operated, self openable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	730			0.0224035774%
B906	Providing and fixing electrically operated, self operable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	137			0.0918385077%
A907	Providing and fixing Automatically closing **Fire proof steel flush insulated doors** along with frame of minimum 44mm thk flush shutter 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 center to center of approved make conforming to IS:3614-2021(latest revision), & CBRI tested- ISI marked for both Single leaf & Double leaf, comply IS/ISO 3008,satisfying LPA regulations and shall carry a unique label with certification/test report number,fire rating embossment, fixed at all elevations, with or without removable panels,with panic bar,panic trim,smoke seal with following fire rating using galvanised MS sheets for frames conforming to IS 277, made out of 1.6mm (16 SWG) for both frame and shutter, G.I. sheet (min.zinc coating 120 gsm), and leaves, mineral wool / PUF/ any other fire retardant insulation material filled with required density, mastic caulking and grouting the frame, reinforcing and insulating the shutters with fire retardant material, with panic devices, including all fittings, fire rated vision glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (min.94 kg/cum density) complete and shall be fire proof as per IS:3614, NBC requirements and as per specification. Fire Rated Door Shop drawings shall be submitted by the fabricator/manufacturer like Navair,4c Fire or equivalent for approval before exectuion. Minimum ratings shall be 2 Hrs. All hardware fittings shall comply to 2 Hours fire rating. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	244			0.3098609055%
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)		0			
a	Openable type	SQM	53			0.0066588329%
b	fixed type	SQM	53			0.0042643435%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventillators, partitions, railing etc with extruded standard tubular and other sections aluminium alloy grade 63400 including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stailess steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	10074			0.3238779147%
A909	Providing and fixing powder coated aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventillators, partitions, railing etc with extruded standard tubular and other sections of aluminium alloy grade 63400 including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, **powder coated in required shade with minimum thickness 50 micons** according to relevant IS , fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stailess steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	27122			0.9033744315%

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
A910	Providing, fabricating, designing, supplying and fixing of **Aluminium composite panel cladding (ACP)** in pan shape in solid,metallic colour,wooden colour,stone finish of approved shades made out of **4mm thick aluminium composite panel (weight of panel should be minimum 8.1 kg/sqmt) material consisting of 3mm thick FR grade Class A2 as per EN 13501**,mineral core sandwiched between two Aluminium sheets **(each 0.5mm thick BMT).**The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the “specification for coated coil for the exterior building application” issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to Class A2, s1,d0 as per EN-13501-1.The manufacturer must furnish the FPC and Certificate of conformity of EN13501-1 for Class A2,s1,d0 from the certifiers and Product must be supplied from the Certified Unit which has been mentioned on the FPC and COC.The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months’ exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the copping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor or equivalent. **The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996.** The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS316 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor shall provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturer of ACP. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	4978			1.1067086012%
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :		0			
a	Over head hydraulic door closures	Each	28			0.0026117549%
b	Floor mounted Hydraulic door closers	Each	28			0.0054450056%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A912	Providing and fixing pressed steel frames(complying general requirements of IS 4531) fabricated from **1.6 mm thick** M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	7589			0.0632435988%
A913	Providing and fixing in position **rolling** s**hutter of hot rolled double dipped galvanised steel** lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides of 75mm wide and 3mm thick(min.) and arrangements for inside and outside locking with push and pull operation including wire springs, top/hood cover 0.9mm thick (min.) , factory galvanized, primed & field painted, partly grilled (as required) with approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%		0			
b	Mechanically Operated	SQM	39			0.0077325966%
c	Electrically & Mechanically operated	SQM	274			0.0694409539%
A915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.		0			
ad	6 mm thick toughened glass	SQM	1709			0.1761960251%
bd	6 mm thick toughened heat reflecting tinted glass	SQM	444			0.0480647086%
e	Providing and fixing of 3.0mm (min.) thick fire retardant and UV resistant polycarbonate clean toughed profile sheet of approved make conforming to IS 14434 in cladding and roof as per specification all complete.	SQM	374			0.0342008897%
h	6 mm thick clear toughened safety glass	SQM	50			0.0053089608%
ah	8 mm thick clear toughened glass	SQM	317			0.0424870458%
bh	10 mm thick toughened glass	SQM	258			0.0397662666%
j	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	622			0.1129317072%
ak	One outer 6mm thick tinted heat-reflecting toughened glass and one inner 6mm thick clear toughened float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance) ≤ 62 %, SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) 0.2 ≤ 0.32 and U- Value 1.2 TO 2.0 W/MSq K,The properties of performance glass shall be as per detail design values as approved by engineer incharge.The glass to be used should be from the approved manufacturers Saint Gobain or equivalent of glass and should be free from distortion and thermal stress.	SQM	59			0.0799204109%
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	332			0.0043959042%
917	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	36			0.0026330754%
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	15			0.0024207592%
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	18			0.0043036848%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A920	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer & painting etc. all complete as per specification. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	43			0.0067139530%
A923	Providing and fixing Electrically operated sliding doors, self operable/closing, G.I. framed with fire resistant glass, with Fire resistant glazed door system shall be of uniform profile 50X50 mm with 14mm EI 20 glass for Interior application. Fire Resistant Glazed Door System shall have 120 minutes of integrity and radiation control (EW 120) with symmetrical (Bi-Directional) fire protection. The frames shall be cold rolled profiles as per EN standard EN 10327/ Indian Standard IS 513. The door frames are cold rolled from 1.6 mm steel sheet to form a profile of 50 mm x 50 mm on all sides. The door shutter shall have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The glass must be minimum 14mm clear,120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 38 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4. The shutters shall be fixed to the frame using Weld-on hinges of dimensions 179mm X 20mm. The profiles shall have groves to incorporate Fire Resistant gaskets. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel selftapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 6 mm Calcium Silicate setting blocks. The door shall be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV) or equivalent. The inactive leaf (in case of double leaf only)shall be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a TUV audited facility. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The doors shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles) all complete as per specification. The door shall have water tightness level of 8A when tested as per EN 1027. Fire Rated Door shall be of Makes- Saintgobain,Navair,4C fire,Matrix or equivalent. all complete as per specification.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	27			0.1014154883%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A926	Providing & fixing Fully Glazed non load bearing fixed partition with 120 minutes Fire Rating,with valid fire test certificate from national or international lab with Partition Frame manufactured from cold rolled profiles of minimum 1.5 mm steel sheet pressed to form a profile of nominal size 50 mm x 50 mm on all sides & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of approved shade and color. The glass panels shall beToughened interlayered minimum 14mm thick,Contraflam Lite, Non Wired, with 120 minute fire rating for integrity and radiation control (EW 120) and insulation (I 20),with 30minute full insulation, with a light transmission of 86% and a sound reduction of 38 dB and manufactured in Intertek & TUV audited facility and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested for 5000 hours of UV resistance as per EN ISO 12543-4.The glass shall provide bi-directional (symmetrical) fire protection. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape or as per the test evidence with cross section of 4 x 15 mm as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non- combustible 5 mm thick calcium silicate setting blocks. The installation shall be through trained and certified by Vetrotech certified Installer.The maximum glazing size shall be as per details design and drawings. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c.The partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026.The partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049.The partitions shall have water tightness level of 8A when tested as per EN 1027. The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120).Fire Rated partition shall be of Makes-Saintgobain,Navair,4C fire, Matrix or equivalent. all complete as per specification.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	124			0.1526657946%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A927	Providing & fixing minimum 30mm thick Hermetically sealed double glass (DGU) consisting of Fire resistant glass of minimum 14mm thick, clear, toughened,interlayered borosilicate glass,120 minutes fire rated for both integrity & radiation control ,remain transparent under both fire and non fire condition and 6mm thick toughened tinted glass with min.10mm air gap filled with inert gas. The partitions shall be 120 minutes Fire Rated,Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from cold rolled profiles Min.1.5 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of nominal size 50mm x 50 mm on all sides or suitable profile to accomodate the glass & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150 mm from the edges & every 500mm c/c .The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and color.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30minute full insulation, Non Wired Toughened Interlayered glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 1(B)1 category of impact resistance as per EN 12600. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification.The glass shall be tested for 5000 hours of UV resistance as per EN ISO 12543-4.The glass shall provide bi-directional (symmetrical) fire protection. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape or as per the test evidence with cross section of 4 x 15 mm as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non- combustible 5 mm thick calcium silicate setting blocks. The installation shall be through trained and certified by Vetrotech certified Installer.The maximum glazing size shall be as per details design and drawings. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c.The partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026.The partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049.The partitions shall have water tightness level of 8A when tested as per EN 1027.The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) all complete as per specification.Fire Rated partition shall be of Makes- Saintgobain,Navair, 4C Fire,Matrix or equivalent. all complete as per specification.(item includes the cost of glazing)Design,Shop drawings for the item with all construction and anchoring details along with fire rating test reports of complete system shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	53			0.0641463383%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A928	Providing and fixing of fully glazed steel fire door (single/ double leaf) with 120 minutes fire rating, of integrity and radiation control (EW 120) fabricated with min.1.5 mm thick galvanized steel sheet. The door frames are manufactured from cold rolled min.1.5 mm thk. galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 50 mm x 50 mm on all sides. The door shutter would have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The overall door opening shall be as per tested evidence and tested as per EN 1634-1 in an accredited international laboratory.The frame shall be finished with approved fire resistant primer or Powder coating of min. 30 micron as per approved shade.The sections have a special insulating infill.The test is conducted in IFTS as per EN 1634-1: 1999.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30 minute full insulation, Non Wired Toughened Interlayered glass, with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass should be compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a special ceramic tape with cross section of 5 x 20 mm as per the test evidence. The shutters should be fixed to the frame using weld-on hinges of dimensions 179mm X 20mm. The profiles shall have grooves to incorporate fire-resistant gaskets. The doors shall incorporate drop down seal at the bottom. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm or as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 5 mm thick calcium silicate setting blocks. The door should be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV), Concealed door closer or equivalent. The inactive leaf should be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a Intertek & TUV audited facility.The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The shutters should be fixed to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt.all complete as per specification and Design,Shop drawings, along with hardwares for the item with all construction and anchoring details along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	53			0.0793471435%
A929	Providing and fixing of frameless Mullion-less toughened Glass fixed partition on patch fittings, made of 12 mm thick, including fittings,hardware, fixing the fittings in floors, soffits, jams including necessary fixtures, screws, ss handels 1000mm long ,C Shape (both side),sealant wherever required and SS cover over patch fittings. etc all complete as per specification. The glass shall be firmly fixed through extruded aluminum extrusions on top, bottom and extreme sides. The glass panels shall be easily removed and refitted (during breakage) without using any special tools. The junction of glass to glass shall be properly secured using extruded PVC or sealant. Sealant shall be properly filled using molded rubber pattern /tool. Finish: anodized or powder coated as per architects drawings / specs. Safety film shall be applied on the glass to avoid shattering.The glass to be used should be from the approved manufacturers of glass Saint Gobain or equivalent make.The glass shall be distortion free and free from thermal stresses, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification,drawing and instructions of engineer in charge.Fabrication drawings should be prepared and approved by enginner incharge before commencement of work as per site condition. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	124			0.0713172156%
A930	Providing and fixing motorized curtain (operated with remote control also) mechanism at all heights.	SQM	107			0.1319371777%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A931	Providing and fixing SS Logo/Signature ICON of NTPC as per Guidelines of "Client" complete in all aspects. Logo to be fabricated in Stainless steel finish as per approved Pantone Shades of Client Guidelines along with proper provision of fixing arrangement of Logo on Partition Surface/Glass Surface/Acrylic Surface etc.Shop drawings for the item with all construction and anchoring details shall be got approved before execution, all complete as per specification and approved by Engineer incharge.	SQM	10			0.0071646884%
A932	Providing,fixing & Installation of manually operated,frameless Vertical Roller venetian blinds with premium fabric quality with 5% openness factor HARDWARE; TOP TUBE : Made of extruded aluminium with 38 mm Dia. and wall thickness of 1.2 mm with spline adoptable to accommodate. CLUTCH MECHANISM : Moulded plastic having self lubrication with Glass fibre reinforcement, having a minimum lifting capacity of 8 lbs weight capacity - 8 lbs Head adoptability - 38 mm OPERATING CHAIN : PLASTIC / STEEL ball chain adoptable to the clutch pitch for smooth operation of blinds. LOCKING MEMBER : Plastic/ steel stop locks for limit setting adoptable to the steel chain. Bonding (Fabric > Tube) : 30/36 mm wide double sided adhesive tape of 3M for strong holding capacity. SPRING BOOSTERS: provided as per the requirement Bottom Bar : aluminium extruded circular section with powder coated finish, having a Min. weight to be 365 gms / Rmt for a perfect fall of fabric to avoid warpage / floating. Ends are covered with end caps to give a perfect finish,installation at site at all heignt complete s per approved sample and instruction of engineer incharge.	SQM	160			0.0342706825%
A933	Providing and fixing dry wall partition up to ceiling height with 12.5 mm thick double skin fire rated Glass Reinforced Gyproc plaster board conforming to IS: 2095: Part 1:2023 (Board with BIS certification marks) Type F / EN520:2004-TYPE-F / ASTM C473/C1396-TYPE X, having thermal conductivity 0.24w/m°k., with 100 mm overall thickness of partition, consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia. meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia. bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.	SQM	53			0.0026459175%
A934	Providing and fixing MS grills of approved design/pattern, with approved standard section for security purpose made of M.S. Flats / M.S. square bar of approved design shall be provided to suit security requirements made of M.S. Flats / M.S. square bar of approved design and fixed to the openings of windows/ventilator etc. with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	213			0.0012816014%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A935	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	160			0.0038946393%
A936	Providing and fixing Frameless single/ double leaf fully Glazed Doors (with etching film of 3M or equivalent make having Project / Purchaser's Logo and other design) on stainless steel patch fitting with minimum12mm thick toughened glass, SS handles (both side), Floor spring, door closure, locking arrangement, in required sizes as per detail drawings, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification, drawing and instructions of engineer in charge.	SQM	14			0.0080519437%
1000	**BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
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.		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	532			0.1590872628%
A1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm upto 10m level above finished ground floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1014), places and position above plinth including raking out joints, curing, scaffolding etc complete but excluding plastering and painting.		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	3507			1.3242148201%
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	785			0.3661452805%
A1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm upto 10m above finished ground floor level (FGFL) (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1015), places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every fourth layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. (Reinforcement payment shall be made seperately as per applicable BOQ in 400 Series)		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making).	SQM	1010			0.0467416987%
B1003	Providing **factory made composite modular light weight aerated concrete panels,** (minimum 2 hours of fire rating) consisting of 2 fiber reinforced cement sheets (minimum 4 mm thick) on either side of light weight concrete core, having minimum compressive strength of 35 Kg / Cm2 and the density in the range of 700-900 Kg. / cu.m. of minimum 75 mm thickness, to provide external wall and internal partition at all levels, capable of sustaining wind pressure of 3.00 M height (H) within limiting deflection of span/250, fixed in position in tongue and groove jointing system by screwing the panels to top and bottom U channels, (channels minimum 1.25 mm thick and galvanised to grade 180 (minimum) as per IS : 277), fixing U profiled top and bottom channels to concrete / primary steel members which are placed at the maximum vertical spacing of 4.5m with the help of galvanised steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fibre glass tape (minimum 50 mm wide and minimum 0.5 mm thick) or by any other suitable material, so as to ensure that the entire construction done with the light weight aerated concrete panels are weather proof and panel surfaces are flush for painting,	SQM	4152			0.4393222722%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
	creating opening for doors / windows /ventilators / ducts / pipes/fans/AC etc. and finishing the opening face with the same U profiled galvanized steel channel which is used at the top and bottom. Payment Breakup: a) On Supply & receipt of panels at site - 50% b) On complete execution as per item description - 50%					
1005	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	44			0.0039869238%
A1006	Providing and encasing of structural steel member with masonary work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6 upto 10m level above finished ground floor level (FGFL) (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1014). Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	53			0.0165461908%
1007	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	36			0.0004203174%
1008	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	44			0.0046104623%
1009	Supply and placing in position mild steel wire fabric(Chicken Wire Mesh) 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	178			0.0015963263%
1010	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	44			0.0024904314%
A1013	Providing and laying Autoclave Areated concrete (AAC) blocks having dimensions of 625 mm x 250 mm. thickness ranging from 100 mm to 300 mm conforming to I.S. :2185(part III) in walls, chambers etc. at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing. The jointing cement sand mortar in the composition of 1: 6 (Cement: sand) shall be used with suitable plasticizer of Myk arment,laticrete or equivalent. Sand having modulus of fineness 1.1 shall be used. The horizontal and vertical joint thickness shall be approximately 10 mm. In case of partition walls (100 mm /125 mm thk.) the joint reinforcement i.e. 1 number of 6-8 mm diameter bars shall be placed at every alternate course to be anchored properly with the main structure. All other structural requirements like stiffening of masonry, joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in IS 6041 – 1985, IS - 1905. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	CUM	1927			0.5479564185%
A1014	Extra over item no. A1002, A1006 & A1013 for height above FGFL (Finished Ground Floor Level) as per following:		0			
a	Height exceeding 10m from FGFL but not exceeding 20m	CUM	914			0.0344887017%
b	Height exceeding 20m from FGFL but not exceeding 30m	CUM	890			0.0604646221%
c	Height exceeding 30m from FGFL but not exceeding 40m	CUM	27			0.0024453793%
d	Height exceeding 40m from FGFL and above	CUM	18			0.0019020886%
A1015	Extra over item no. A1003 for height above FGFL (Finished Ground Floor Level) as per following:		0			
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	178			0.0004141412%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	178			0.0007454542%
1100	**DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
1101	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.		0			
b	50mm thick	SQM	465			0.0083010150%
1200	**PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
A1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar as applicable upto 10m above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete		0			
a	Cement Mortar 1:6	SQM	18395			0.3789610273%
A1202	Providing 12mm thick plaster internal/external surfaces of building/boundary wall in cement mortar as applicable above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls finished to a smooth finish as per specification all complete.		0			
a	Cement Mortar 1:6	SQM	20427			0.3586067676%
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	15026			0.2377282440%
A1206	Extra over Item 1201 to 1202 for plastering on exterior walls over & above 10m height from FGFL.		0			
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	15865			0.0335564397%
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	15088			0.0574433793%
A1207	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	1065			0.0018921898%
1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (chicken wire mesh to be paid separately)		0			
A1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over 0.9 mm thick G.I. chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (chicken wire mesh to be paid separately)	SQM	53			0.0017375742%
A1210	Providing drip course in cement mortar(1:3) in parapet, chajjas, windor/door heads, architectural facias, fins,etc all complete with all labour, T&Ps as per specification, drawing and instructution of engineer.	RM	830			0.0012639980%
B1210	Providing mouldings and cornices 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 incharge.	RM	107			0.0002309911%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
1300	**FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
1301	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	2164			0.0039729471%
A1304	Two or more coats of **Low VOC (volatile organic compound) Acrylic distemper** of approved brand shade and as per manufacturers guidelines Nerolac / Berger /JK wall maxx,/Asian or equivalent, to give smooth, hard, durable & glossy even shade finish over a coat of primer over prepared plaster surface as per manufacturers guideline.All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	36931			0.1984086417%
A1305	Providing and applying **two or more coats of acrylic emulsion plastic paint with low VOC (volatile organic compound)** as per IS 15489,relevant latest code of approved brand, shade and manufacturer guidelines Nerolac / Berger /Sakarni /JK maxx /Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have **VOC content limit less than 50 grams per litre** All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	1766			0.0127299320%
B1305	Providing and applying two or more coats of **exterior quality Acrylic emulsion paint** with low VOC (volatile organic compound) as per IS 15489,relevant latest code of approved brand, shade and manufacturer guidelines Nerolac / Berger /Sakarni /JK maxx /Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have VOC content limit less than 50 grams per litre. All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge	SQM	1766			0.0127299320%
A1306	Providing and applying 2 or more coats of oil resistant paint(epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer 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	2811			0.0461855226%
A1317	Providing and applying 2 mm thick Acrylic wall putty (in Two Coats) over cement plastered surfaces in interior of building including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	53849			0.3161789147%
A1319	Providing and applying **two or more coats of weather coat paint of Premium Acrylic Smooth Paint with Silicone additives, over and including Texture base coat**, of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification. Textured base coat (Two or more coats applied @ 6.5Kg/10 sqm over and including priming coat of exterior primer applied @ 2.20Kg/10 sqm) of High Quality Exterior Acrylic Modified resin and special quality Silica Quartz with Trowel Texture as per selection of owner.	SQM	18395			0.1330638104%
1400	**FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	46280			1.3234448304%
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm 20 well graded) and top layer of 10mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete as per specification.	SQM	185			0.0045155779%
A1404	Providing and laying **interlocking M35 Grade concrete blocks confirming to IS:15658 in paving** with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing). **Kerb blocks or concrete block specified for various uses shall be precast blocks made of alkali-activated concrete /Geopolymer concrete as per IS:17452- 2020.** Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	80mm	SQM	2885			0.1325383130%
A1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 30mm thk of 1 cement : 1.5 sand : 3 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, moulding, cornice, granite polishing etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	2968			0.5363656245%
A1416	Providing and laying vitrified ceramic tiles of size 600x600/600X1200 with Digitally Glazed (Matt/glossy/mettalic finish) in flooring, skirting approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Orientbell or equivalent, complete including underbed of 1:3 cement mortar 40 mm average thick underbed for flooring and 12 mm thick underbed with cement mortar 1:3 for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following..For Dado chemcial motar/adhesive to be used of approved manufacturer SP-35 of Laticrete or approved equivalent. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
b	9mm thick tiles In flooring	SQM	6838			0.4713851622%
c	7mm thick tiles In skirting and dado upto specific height	SQM	44			0.0025015993%
d	9mm thick tiles In skirting and dado upto specific height	SQM	147			0.0106363719%
B1416	Providing and laying Digitally glazed vitrified ceramic tiles of polished and matt variety of size 800x800/1000x1000 (Matt/glossy/mettalic finish) in flooring, skirting of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Varmora, or equivalent , complete including 40mm average thick underbed of cement mortar 1:3 for flooring with neat cement slurry and 12mm thick underbed for dado/skirting with cement mortar 1:3 with neat cement slurry @3.3Kg/sqm etc.,3mm groove joints as per approved pattern pointed neatly with 3X4mm stainless epoxy grout SP- 100 of Laticrete, Luxture or approved equivalent in approved colour to match colour of tile etc. all complete for following. .For Dado chemcial adhesive to be used of approved manufacturer SP-35 of laticrete or approved equivalent. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
b	9 to10 mm thick tiles In flooring.	SQM	5325			0.4889227086%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
c	9 to10 mm thick tiles In skirting and dado upto specific height.	SQM	213			0.0204386502%
A1417	Providing and laying Digitally glazed vitrified ceramic tiles (DGVT/PGVT) of matt finish of size 1000x1000mm/1200x1200 from reputed / approved manufacturer as Simpolo,Varmora or equivalent underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in maufacturing of vitrified tiles to be used to engineer in charge)Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
b	9.00 mm (min.) thick tiles In flooring	SQM	1544			0.1437891561%
d	9.00 mm (min.) thick tiles In skirting and dado upto specific height	SQM	178			0.0171605070%
A1418	Providing and laying heavy duty Antiskid full body vitrified tiles 18-20 mm thick of size 600x600mm in flooring, of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo or equivalent ,complete including underbed of 1:3 cement mortar average 30mm thick for flooring with neat cement slurry @3.3Kg/sqm etc.all complete. Full body Vitrified Tiles shall be laid on properly laid levelled floor, with spacer/groove joints 3 to 5mm wide & 8 to 10mm deep & shall be filled with approved Epoxy Grout (stainless epoxy grout SP- 100 of Laticrete) with matching shade mix of 0.70kg of organic coated filler of desired shade (0.10kg of hardener and 0.20kg of resin per kg). Full body Vitrified Tiles shall have water absorption less than 0.5%, Modulus of Rupture more than 38N/mm2, Breaking strength more than 7500N, Moh's scale more than 6, Abrasion resistance less than 144 mm3 and coefficient of friction more than 0.4. Vitrified Tiles shall generally conform to IS: 15622. All complete (including cost of epoxy grouting)as per engineer incharge. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	400X400 mm		0			
b	600X600 mm		5742			0.7442818181%
1419	Providing and laying G**ranite stone slab of 20mm thickness single piece** for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete.	SQM	51			0.0122347646%
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 20mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	300X300 mm	SQM	528			0.0262221209%
A1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over suitable undercoat of adequate thickness (as recommended & applicable in accordance with clause 10 of IS 4443 - 2025). The tiles shall be applied with 6mm thick resin type bedding mortar **(epoxy resin or furane resin)** as per IS: 4443 & 4832 - Part 2 and including preparation of surface, application of suitable primer, pointing of joints of tiles with acid/ alkali resistant epoxy/ furane mortar up to a depth of 20mm, suitable top coat sealing as per IS 4443, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	20mm thick	SQM	10			0.0025026145%
b	38mm thick	SQM	2010			0.5786153924%
c	75mm thick	SQM	25			0.0082762152%
A1424	Providing & fixing chemical resistant **(AR)(Acid / Alkali) bricks (115mm thick)** conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by **18mm thick bituminastic** followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar.	SQM	10			0.0025284311%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
	Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
B1424	Providing & fixing chemical resistant **(AR)(Acid / Alkali) bricks (75mm thick)** conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by **18mm thick bituminastic** followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	151			0.0297088963%
1427	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses: Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	5mm thick	SQM	835			0.0406915985%
b	7mm thick	SQM	71			0.0037873830%
A1431	Providing and fixing, laying min.15 mm thick Engineered woodden panel flooring and skirting of of reputed / approved manufacturer Greenlam,Boen,or equivalent multi-layered engineered wooden planks treated with VOC free lacquers and stains to provide extra strengthening, longevity and durability to planks. In all planks each layers are arranged at cross grain to each other for provide the balancing and stability to all three layers.Top layer of flooring finish with UV hardened , acryliclaquer,and made up of about 3.0 mm thick thermosetting re-polish able natural veneer setting on a core of about 10 mm thick pine wood that produce natural characteristic of wood with 2.0mm thick bottom ply based veneer balancing layer. The planks are joint to each other through plankloc system with glue less technology system and laid on 2mm thick dual barrier underlay protecting sheet having anti-bacterial, Anti-termite, fire-resistant, noise reduction, high wear and abrasion resistance, water resistant properties.The system includes all accessories like beading, Quadrant, Veneered/solid wood skirting, end profile etc.as per as per manufacturer specification and approved by Engineer Incharge. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	355			0.0500165375%
B1431	Providing and laying minimum 50 mm thick wooden flooring, consisting of 37 mm thick hardwood planks, finished with min. 11mm thick wooden flooring of greenlam,Boen,Bekker,robina or equivalent with min. plank size 193x1195mm (material class shall be 34 as per EN13329) of approved color and shade, over 2 mm expanded polystyrene foam and polythene sheet under laying all complete as per manufacturer specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	568			0.1585513790%
A1432	Providing and fixing **Rubber flooring over cement concrete floor min. 4mm thick with sheet size of 602 mm x 602 mm**. Rubber flooring shall conform to IS 809. Rubber flooring shall consist of 100% virgin elastomer reinforcing agents, resins, curing agents, anti-oxidants and pigments. It shall have excellent abrasion resistance and shall have class-I fire rating. It shall be acid & alkali resistant and shall be of anti static grade. In general, BS code shall apply for their technical characteristics. etc all complete as per specifications. (Cement concrete flooring to be paid separately). Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	509			0.0582469100%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A1433	Providing and fixing Glass **mossaic tiles at finished plain** wall surface of size 24 mm x 24 mm x 3.8 mm thick (minimum) in in decorative murals and pattern of approved colour, shade, design , fixing in customize design, as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the vertical wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in- Charge:. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	107			0.0132105920%
A1434	Providing Dielectric epoxy based coating as per IS: 15652 shall be provided. The minimum dielectric strength for insulating floor (for all switchgear rooms up to and including 11 KV switchgear) shall be 45 KV ac rms (Class B as per Table-4 of IS-15652: 2006). The minimum thickness of insulation coating shall be 2000 microns for switchgear rooms up to 11 KV or as per the lab certificate fulfilling the dielectric strength requirement, whichever is higher. Dielectric test reports as per IS-2584 from a NABL accredited laboratory shall be submitted. Further, test reports for adhesion, tensile strength, scratch hardness, shore hardness, abrasion resistance shall be submitted in line with requirement of relevant national/international standard. The coating shall be high gloss finish and top color of coating shall be decided during the detailed engineering. Arc flash boundary and golden yellow safe boundary shall be provided. The item includes preparation and submission of procedure of approved manufacturer Mykarment or equivalent, of coating and conducting dielectric testing in a NABL accredited laboratory on a sample prepared during application at site, all complete as per specification.	SQM	4141			0.3686030897%
A1435	Providing and laying Tactile, tac liner & tac button fully vitrified unglazed porcelain tile (for guiding band/s for visually impaired persons), size 300x300 15mm thick having Tile body 10mm thick plus profile 4.5mm thick. Low water absorption below 0.5%. MOR > 38NCM2, MOH Hardness >7 & Breaking strength > 4000 N. Tile confirming RNIB (The royal national institute for the blind, UK) , DETR (Department of the environment, transport and the regions, UK), & ADA (American With Disabilities Act, USA) , high stain and chemical resistance. Confirming IS 4457: 2007. Tile will be laid on 20mm thick cement & sand mortar with cement slurry having 4mm spacer & pointing with 3X4mm stainless epoxy grout / polymer based SP- 100 of Laticrete or approved equivalent in approved colour. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	16			0.0010282912%
A1436	Providing, Designing & fixing Glass Reinforced Concrete (GRC) in approved design ,customized Screens,jalli, and Dome in shapes , size, texture, thickness, pattern and color fixing upto any height as per the drawing & approval,including necessary scaffoldings required for installation.GRC customized screens are from approved manufacturer Unistone or equivalent. Glass Reinforced Concrete (G.R.C) Screens shall be casted with 'Spray Mix' concrete design in approved size, pattern, thickness of 50mm on the outer Border & 25-30mm for Internal member and shade. The Screens should be made from ‘53 grade’ White Portland Cement manufactured by ‘JK Cement’ or 'Birla white', White Quartz fine graded sieved Silica Sand, Alkali Resistant Glass Fibre manufactured by 'NEG Japan, Owen Corning ‘Saint Gobain’ or equivalent, SuperPlasticizers manufactured by ‘Karochem’ or equivalent, Polymers manufactured by ‘Nova Polychem’ or equivalent and U.V resistant Synthetic inorganic pigments shall be used for pigmentation manufactured by ‘Phenochem industries or equivalent. The Screens casting shall take place with layering methodology using- Direct Power Spray machines. The GRC Screens flexural strength average L.O.P shall be above or equivalent to 6 N/mm2 & M.O.R shall be above or equivalent to 12 N/mm2 for tests done on 28 days cured samples. The fixing of Screens shall be done using ‘Dry fixing’ method onto structural support members i.e. R.C.C, Brick work, MS Framework. SS / MS Galvanized CLAMPS & PINS also if required fasteners to be used of Wurth, Hilti & Fischer or equivalent. All cast in socket to be epoxy primer coated. Electrodes to be used of advani, mangalam, esab or Victor brand or equivalent.GRC Customized Screens,dome shall be of Unistone make or equivalent.Installation to be done by specialized vendor in strict supervision if rerquired as per the manufacture's specification and as directed by Engineer.The colour, texture and pattern finish shall be as finalized by Architect enginneer.	SQM	16			0.0029324145%

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
	Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
1500	**ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A1501	**METAL DECK SHEET Type-I,** Designing, providing and fixing permanently **color coated galvanised MS troughed** metal sheet decking plate of approved colour **over roof purlins for cast-in-situ roof slab** as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum **0.8mm** with minimum trough depth of **44mm** (or as per design whiever is higher) of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to **the roof slab 40mm - 100mm thick** measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of **min 100 kg/sqm** (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minimum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahll be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 65 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. **Measurement of profile sheeting shall be of the plan area of roof/ floor covered by MS trough metal decking. (Shear anchor studs to be paid separately under BOQ Item No A1503 & B1503).** Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%		0			
a	Span Upto 1800mm	SQM	30970			2.3057895618%
b	Span Exceeding 1800mm and upto 2500 mm	SQM	3053			0.2273030524%
A1503	Providing and fixing shear anchor studs for fixing metal deck sheet to floor structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of required size manufactured from cold drawn round steel barsconforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification.	QUINTAL	102			0.2049986485%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A1505	Designing, providing and fixing **External/ Inner sheet of Permanent colour coated metal cladding / roofing** with troughed M.S. sheets of **minimum 0.5 mm** bare metal thickness of **min.** g**rade G350 as per AS1397/grade SS340 class 4 or as per ASTM A792M/ grade S350 GD as per EN 10326 with zinc coating to class Z275 / aluminium zinc alloy coating to class AZ150** on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete **over columns, beams, bracings etc. at all levels.** The exposed face the sheet shall be permanently coated with s**ilicon modified polyster(SMP silicon content 30%-50%)** paint **or** super polyster paint of minimum **20 micron DFT** on exposed surface over **primer coat of minimum 5 micron** and minum **10 micron SMP** or **super polyester paint** over primer coat of **minimum 5 micron** on other face. SMP and polyster paint system sahll be of industrial finish of **product type 4** of AS/NZ2728. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	20130			1.0320772151%
1512	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.		0			
a)	For insulation in Sandwich Cladding	SQM	4711			0.2253935609%
b)	For underdeck insulation below RCC slabs	SQM	1331			0.0780381709%
A1519	Designing, providing and fixing **Factory made (Continous Line) prefabricated sandwiched Permanent colour coated metal cladding** comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as **plain** permanently colour coated for covering of exposed metal/concrete / brick surfaces with **insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m3 and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M 0k, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm,** sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet **0.5mm bare metal thickness (minimum)** of YS350 as per IS 15961 /grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyster (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of **industrial finish of product type 4** of AS/NZS 2728,troughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to **corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test**, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a **protected guard film** (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	4944			0.6048979473%
1600	**FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
A1601	Providing and fixing **12.5 mm thick tapered/square edge glass fibre reinforced gypsum board false ceiling** conforming to IS : 2095 having fine texture finish, including providing and fixing of frame work at all levels, for all kind of work, consisting of light weight galvanised steel member (minimum 0.8 mm thick and galvanised as per IS: 277) having maximum grid size of 1200 mm x 600 mm for supporting panels of specified size, suspended from RCC structural steel or catwalkway grid above, with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm width along the perimeter of ceiling, supporting grid system (minimum 0.8 mm thick and galvanised as per IS: 277), expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete. (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer in charge.	SQM	1231			0.0639473005%
A1602	Providing, fixing and laying light weight **mineral fiber tile false ceiling** of minimum **thickness 15 mm** and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of **class 0/1 as per BS 476** with metal suspension grid system with galvanized Tees (silhouette T - profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc**.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.**(All mineral fiber board to be used should be with **appropriate % of recycled content.** The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturing of board to be used). (Mineral wool insulation to be paid separately). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	947			0.0906567882%
A1603	Providing and fixing permanently colour coated a**luminium false ceiling** of approved colour of **Luxalon** Hunter douglas,Newage or approved equivalent with corrosion resistant aluminium alloy panels of size **600 mm x 600 mm and 0.6 mm thk**. with clip on torsion spring system ,perforation patterns in combination with built in nonwoven tissue, acoustic fleece for providing good acoustic properties and installed with silhouette T-Grid (of profile 24 mm) in same or contrasting colours or with 6 mm recess joints. The whole system shall be level adjusting arrangement and shall be suspended as per manufacturer. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 at minimum grid distance 1.2m c/c shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately.) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	1640			0.3727779272%
B1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon 150C,300C, of Hunter douglas,Newage or approved equivalent with corrosion resistant aluminium alloy (Al grade 3105,Al-Mg AA 5050) panels of of minimum thickness 0.6mm with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.55. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.(Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301) Payment Breakup: a) On Supply & receipt	SQM	888			0.1883881921%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
	of material site - 60% b) On complete execution as per item description - 40%					
A1604	Providing, fixing and laying permanently colour coated Designer metal aluminium false ceiling of approved colour with stove enamel finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in LINEAR, RECTANGULAR, SQUARE, CURVILINEAR , OPEN GRID type etc.as per detail engineering drawing , with corrosion resistance aluminium alloy (grade 3105) panels of minimum thickness 0.6mm,with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.7. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc.Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	178			0.0353134116%
B1604	Providing, fixing and laying **permanently colour coated Designer metal Batten panel extruded aluminium false ceiling** of colour with stove enamel finish,powder coating in wooden finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in combination with demountable translucent stretch ceiling members etc.as per detail engineering drawing & manufacturer specification with corrosion resistance aluminium alloy (grade 3105,Al-Mg AA 5050) panels of minimum thickness MIN. 0.6mm.The battens shall have possibility of curvilinear arrangement.Batten ceiling of 1”x1” made up of extruded aluminum with “click-on system” and meet technical requirements of ASTM E84 having superior acoustics & highest health and safety standards The ceiling shall be installed using ceiling aluminum suspension system, etc. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc.Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	178			0.0416527464%
A1607	Providing and Fixing 12mm thick water resistant Calcium silicate board, gyproc or equivalent in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufaturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%	SQM	269			0.0267883228%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A1609	Providing , Design and fixing Aluminium **ceiling trap door in the false ceiling** matching with false ceilign material with min. 2mm thick powder coated inner and outer aluminum frame, corner fitting plate with stainless steel of 2mm thick fixture are with self-drilling screws and sealing strip of 6mm width and 6mm thick. Hinge operated through Push-lock mechanism.	SQM	36			0.0062533566%
1700	**RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.**		0			
1705	Providing and fixing UPVC down take pipes of 110mm diameter-Class 3 as per IS:4985 all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	1243			0.0568411189%
1706	Providing and fixing UPVC down take pipes of 160mm diameter-Class 3 as per IS:4985 all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	2518			0.1518941497%
1800	**MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
A1801	Providing and Filling in trenches, plinths, area paving, **grade slab,** other underground structures, **etc.** with 63 mm downgraded hard stone aggregate as per IRC specification watering and compaction to minimum of 90% Standard Proctor density, including filling the interstices of stone aggregates with sand) in layers not exceeding 200 mm in thickness all complete **as per drawings/specifications.** Payment shall be made for the measurement of the volume of the compacted fill.	CUM	21140			2.1847122588%
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	120			0.0171680372%
1804	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	3772			0.0386147161%
1807	Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment). Drilling 12mm dia hole @300 c/c using material one liter per hole.	SQM	8950			0.1056313996%
1808	**Laying of earthing mats/rod**s including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	284			0.2011607986%
1809	Construction of below ground **earthing system test pits** as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	71			0.0383814179%
1810	Construction of **below ground earthing system test links** as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	71			0.0294520842%
1811	Construction of **below ground earthing system earth electrodes** as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items & steel shall be supplied by BHEL free of cost.)	NO	71			0.0026791005%
1812	Construction of **below ground earthing system - Earth connection and riser pig tails** as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	NO	71			0.0021895339%
1813	Providing **Earthing pit** as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	NO	71			0.1147447914%
1814	Construction of **below ground earthing system test pits** as per drawing/ sketches including brickwork, plaster, providing & fixing GI	NO	71			0.0668333446%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
	strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.					
A1825	Providing & Laying 400micron thick polythene sheet below the concrete base including materials, labour etc. complete as per drawing / direction of engineer.	SQM	355			0.0015601530%
1,827	**Anti weed chemical treatment of soil** with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterlization test certificate, performance guarantee of three years etc. all complete.	SQM	8950			0.0018930358%
A1837	Providing **50mm thick premix** carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M or equivalent to 8% to 10% by volume including compaction. Separation layer of one tack coat @ 1Kg/sqm shall be spray after first layer of 30mm and sand shall be sprayed on the final surface of 20mm @ 0.5 cum/100 sqm. etc. all complete as per specification ans as guided by engineer-in-charge.	SQM	155			0.0053373035%
A1838	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	155			0.0044980224%
A1844	Providing and installation of Bio-Toilet near all the modular worker's sheds etc all complete as per specification.	NOS	2			0.0046394476%
A1845	Design, manufacturing, supply, delivery to site, and complete installation of a **field porta cabin of 40 feet by 10 feet length as per approved specifications and drawings**, including MS steel structural framework with primer and finish paint, insulated wall and roof sandwich panels, flooring with pre-laminated/plywood base and anti-slip vinyl/laminate finish, doors and windows with aluminium/glass frames, locks and accessories, furniture, concealed electrical wiring with sockets, switches, distribution board, lighting, fans, and earthing, ventilation/exhaust fans or small HVAC units where required, internal and external painting, and finishing works. The work shall also include transportation, loading, unloading, site assembly, alignment, anchoring, and miscellaneous accessories such as door stoppers, window fittings, sealants, and signage. All materials, workmanship, and installation shall conform to approved makes and specifications, and the work shall be executed as per the instructions and satisfaction of the Engineer-in-Charge, complete in all respects.	NOS.	0			0.0000000000%
A1847	Providing & fixing 200 dia HDPE pipe ISI mark 6 Kg/cm2 as per specification.	RM	1065			0.0886109661%
A1849	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views,panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete).Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder.The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/customer.Engineering services of acoustic design, interior architecture, PA system, planning for firefighting system as per inputs provided by BHEL, external & internal finishes, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing,etc. are also included in this item. Any additon/changes in design as per customer requirement during detailed engineering stage, no extra payment is admissible. All design and drawings shall be submitted in soft and hard copies along with 3-D model.Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL Civil design wing, during detailed engineering stage for further sub-contracting of finishing works.	LS	1			0.1295142786%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A1850	Providing engineering services for Rain water harvesting including preparation of Rain water harvesting scheme, collection of required data, submitting to ground water board and getting approval from Customer and Ground water board at start & completion of work etc. complete as per statutory norms. The Engineering firm/person should be approved/accepted by ground water board and shall have similar experience of rain water harvesting for complete power plant. The scope shall include rain water harvesting for entire plant including Coal handling plant, ash handling plant inside plant boundary. The scope shall include preparation of rain water calculations, calculations for ground recharge/collection, ecnomical design of rain water harvesting with diferent options under discussion with BHEL and submit design, drawings, report to Ground water board, obtain approval from Ground water board & Customer and on completion of work get the completion approval for rain water harvesting from Ground water board. This includes visits to site with/without ground water board officials and rate of this item shall include all expeses of consultancy, site visits etc. required from start of work till final obtaining of compeltion approval from ground water board. Payment for execution of rain water harvesting ponds & ground water recharge scheme shall be paid separately.	LS	0			0.0000000000%
2000	**FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A2003	Supplying and erecting in position **2.4 m high PVC coated G.I. welded wire mesh fencing of minimum 4 mm diameter (including PVC coating) of mesh size 75mmX75mm including providing concertina of 600 mm height over chain link fencing**.The diameter of the steel wire for chain link fence (excluding PVC coating) shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. On every fourth post a clamping strip will be threaded through the links of chain link and bolted to the fence post with the help of security nuts and bolts.Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be of high tensile serrated galvanised wire (HTSW) with wire diameter of 2.5mm stretched to 6m and attached to two strands of galvanised HTSSW of 2.5 mm diameter by means of clips at 1m intervals. These two HTSSW strands will be attached to the fence posts with 12 mm security fasteners etc. all complete. (Structural post shall be separately under ST No. 2007) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	511			0.0645152932%
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	MT	28			0.1360280135%
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	MT	26			0.1423136539%
2100	**WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck/body bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	NOS	199			0.0091505757%
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	199			0.0081319743%
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:		0			
a	25mm nominal bore.	NOS	99			0.0045522964%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
b	50mm nominal bore.	NOS	99			0.0065750740%
A2104	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, confirming to IS 15778, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings, all pipes shall be concealed and painted with anticorrsive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:		0			
a	15 mm nominal bore.	RM	994			0.0209197036%
b	20 mm nominal bore.	RM	1988			0.0451843684%
c	25 mm nominal bore.	RM	1988			0.0529343877%
d	50 mm nominal bore.	RM	994			0.0485444985%
A2105	Providing and fixing UPVC pipes conforming to IS:13592 complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:		0			
a	15 mm nominal bore.	RM	994			0.0038432477%
b	20 mm nominal bore.	RM	994			0.0051243303%
c	25 mm nominal bore.	RM	2485			0.0160135321%
d	50 mm nominal bore.	RM	2485			0.0320270642%
e	75 mm nominal bore	RM	994			0.0192162385%
f	100 mm nominal bore	RM	497			0.0128108257%
A2106	Providing and fixing 900mmx600mmx6mm thk mirror edge mounted with teak beading and minimum 12 mm thick plywood backing or mounted with SS Studs from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	99			0.0087761215%
A2108	Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete.	NOS	99			0.0058631233%
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	199			0.0059684987%
2113	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia shower arm all complete.	NOS	199			0.0066082814%
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. A2105. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a	500 litres capacity	NOS	20			0.0070052902%
b	1000 litres capacity	NOS	10			0.0070052902%
c	2000 litres capacity	NOS	5			0.0070052902%
d	5000 litres capacity	NOS	5			0.0175132254%
A2115	Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.	EACH	199			0.0081690048%
A2116	Providing and fixing metal storing cabinets 4(Four) Drawer Metal File Storage Cabinet with Central Locking System, Powder Coated (Approx size 54" X 18.5" X 27" Inch, Grey) all complete	EACH	99			0.0646786744%
A2117	Providing and fixing electric operated hand dryer with photo voltaic control.etc all complete..	EACH	99			0.0215610079%
A2118	Providing and fixing Recessed porcelain soap tray in shower area etc all complete.	EACH	199			0.0092810576%
A2119	Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	EACH	20			0.0017421274%
2200	**SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A2201	Supply and fixing glazed vitreous china Wash Basin 550 mm x 450 mm mounted over granite beveled edge counter fitted with photovoltaic control system for water controls, bottle trap with two taps and all requisite items.of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
b	Colored	EACH	99			0.0655120268%
A2202	Providing and fixing approved vitreous china laboratory basin/sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 32mm, 32mm CP brass waste coupling and 32mm CP brass bottle trap with necessaary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	10			0.0043415032%
A2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm with drain board of atleast 450 mm length with trap conforming to IS: 13983 including all fittings etc. all complete as per specification.	EACH	10			0.0039100179%
2204	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete as per specification, drawings and as per direction of Engineer-in-charge.		0			
b	Wall mounted	EACH	85			0.0649385321%
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete.	EACH	99			0.0371889534%
2206	Providing and fixing white flat back glazed vitreous china urinals of size 370x315x620 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	99			0.1070438793%
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.		0			
a	75mm dia pipes	RM	1988			0.0384324770%
b	110mm dia pipes	RM	1988			0.0608023651%
c	160mm dia pipes	RM	497			0.0209822823%
d	200mm dia pipes	RM	497			0.0305483529%
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a	200mm dia	RM	1846			0.1031573816%
b	300mm dia	RM	71			0.0063823862%
c	450mm dia	RM	53			0.0060691786%
d	600mm dia	RM	44			0.0061925750%
e	900mm dia	RM	27			0.0051397509%
2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a	150mm dia	RM	27			0.0011661524%
b	250mm dia	RM	27			0.0015065181%
c	300mm dia	RM	27			0.0016961178%
d	450mm dia	RM	27			0.0023779914%
e	500mm dia	RM	27			0.0027971667%
2210	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following: Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a1	250mm dia	RM	27			0.0019734105%
a2	300mm dia	RM	27			0.0023680926%
a	450mm dia	RM	27			0.0035521390%
b	600mm dia	RM	27			0.0042911209%
c	900mm dia	RM	27			0.0057964969%
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	50			0.0366297146%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	50			0.0378459108%
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:		0			
a	100x100mm P or S Type.	EACH	99			0.0106792603%
b	150x100mm P or S Type.	EACH	50			0.0058885048%
c	150x150mm P or S Type.	EACH	50			0.0066795611%
2214	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	398			0.0414848545%
2215	Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete.	EACH	99			0.0092595468%
2216	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	5			0.0123225000%
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	10			0.0343745696%
2218	Providing and fixing white viterous urinal partitions of size 675x325x85mm all complete.	EACH	82			0.0128519155%
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	10			0.0091119535%
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitory works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.		0			
a	75mm dia pipes	RM	99			0.0061855951%
b	100mm dia pipes	RM	149			0.0120514680%
c	150mm dia	RM	149			0.0184238708%
d	200mm dia pipes	RM	50			0.0091584862%
e	250mm dia pipes	RM	50			0.0146535780%
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,concrete to be paid seperately)		0			
a	75mm dia	RM	149			0.0099777583%
b	100mm dia	RM	249			0.0196657023%
c	150mm dia	RM	249			0.0303043522%
d	200mm dia	RM	99			0.0173925364%
e	250mm dia	RM	99			0.0282686301%
f	300mm dia	RM	99			0.0341652569%
2223	Providing and fixing vertical wall mounted water geysers/heaters(minimum 5 star rating) of required capacity including all connections & fittings(angular stop cock and brass connection pipes, etc.) all complete as per specification.		0			
a	15 Litres	Each	50			0.0288608648%
b	25 Litres	Each	50			0.0373742382%
2300	**STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
A2301	**Erection of shop fabricated (field connections will be bolted type unless noted otherwise)** Mild structural steel, Medium and High Tensile structural steel with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading,transportation, unloading,collection of steel from stores inside the plant premises, alignment, true to line, level, plumb & dimension,temporary erection bolts & nuts, assembly, visual inspection, non destructive and special testing, rectification and correction of defective bolting works, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. The work shall be satisfactorily completed with required tightening of HSFG bolts. The shop fabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 meters and all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of structure but not for temporary erection bolts & nuts. High strength (HSFG) bolt including nuts and washer shall be paid separately. **(As applicable, Transportation of Shop Fabricated Structural Steel from BHEL Storage Yard located approx. 12 km outside the plant premises to NTPC Telangana Project Site shall be paid seperately in St No D2301) Payment Breakup:- 1) On Completion of erection-60% 2) Balance on completion of alignment,bolt tightening etc.-40%**	MT	14859			11.8677933241%
C2301	**Fabrication (Site Welded as per specification), transportation from fabrication yard and Erection of fabricated** (field connections will be welded type unless noted otherwise) Mild structural steel (Grade designation E250), Medium and High Tensile structural steel (Grade designation E350 or higher) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading,transportation,unloading,collection of steel, machining,welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension,erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating,testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. This item is excluding appointment of a seperate agency, approved by BHEL, for connection design & preparation of fabrication drgs (Using 3D model software like Tekla or equivalent) preparation and submission of fabrication drgs in consultation with BHEL. (Rate shall be exclusive of surface preparation and primer) **(Raw structural steel is supplied at BHEL Storage Yard, the cost of transportation shall be paid as per St No D2301) Payment Breakup:- 1) On**	MT	2657			3.8202616927%

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
	Completion of Fabrication - 60% 2) On Completion of erection-25% 3) Balance on completion of alignment,welding etc.-15% Note:- BHEL shall provide land for fabrication yard free of cost inside the plant premises. In case, BHEL is unable to provide land free of cost to agency, the agency shall arrange land for fabrication yard outside the plant premises along with electricity & water in their scope and payment for the same shall be reimbursed as per St No C2301A					
C2301 A	Extra over Item No C2301 for arranging land (outside the plant premises) for fabrication yard including electricity, water, transportation from fabrication yard to project premises, safety, security, etc all complete for carrying out fabrication works for NTPC Telangana Project work.	MT	2657			0.3051372128%
D2301	Transportation of Shop Fabricated Structural Steel, Reinforcement Steel and Structural Steel from the designated BHEL Material Storage Yard (located approximately 12 km outside the plant premises) to NTPC Telangana Project Site, including loading/unloading at the storage yard, transportation, handling, stacking, labour, supervision, tools & tackles, lifting equipment, vehicles, fuel, statutory permits, and all other consumables and incidental charges as directed by the Engineer-in-Charge (EIC). This item shall be applicable only for those materials stored at the designated BHEL Material Storage Yard outside the plant premises.	MT	13373			0.6265523197%
A2302	Extra over ST NO. B2301,C2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) & providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) of minimum 70 micron DFT . Zinc dust composition and properties shall be Type-II as per ASTM D520-00. The primer coat shall be applied over shot blast cleaned surface including touch-up painting etc all complete as per specifcation and direction of engineer-in-charge. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT	2657			0.5044676672%
A2305	Providing and applying intermediate coat of . two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT on steel surfaces already having primer coats, of approved make and shade to achieve an even shade including protection and cleaning, scoffolding etc. all complete.	MT	2657			0.2980404715%
B2305	Providing and applying Top coat of twopack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT on steel surfaces already having primer coats of approved make and shade to achieve an even shade including protection and cleaning, scoffolding etc. all complete.	MT	2657			0.2980404715%
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling,		0			

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
	welding, edge preparation, etc. all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%					
a	Minimum galvanisation of 610 g/sqm	MT	229			1.2244124480%
2307A	Supplying, fabrication, erection and alignment of factory made **Heavy Duty electroforged galvanised grating** units with mild steel having minimum hot dipped galvanisation conforming to IS:2062, finish blast cleaned to Sa 2 ½ finish or cleaned by acid pickling as per ISO 8501-1, in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%		0			
a	**Minimum galvanisation of 610 g/sqm**	MT	143			0.7645894326%
2311	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	1486			0.0094292221%
2312	Providing 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 etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	193165			1.4136449211%
A2312	Supply, fabrication, transportation and delivery at site of high strength structural bolts (of property class 10.9 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	297177			2.2891721932%
2313	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alighment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scafolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	18			0.0090238797%
2314	Addition to, alterations in and/or modifiction of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:		0			
a	In erected position	MT	18			0.0228402917%
b	In fabrication yard	MT	18			0.0189873821%
2315	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required 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	MT	18			0.0144111002%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
	members and adjacent members not payable), scafolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.					
A2317	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner conforming to ASTM A240 S304 (Type 304) with Mill finish 2B cold rolled, annealed, descaled (pickled) and skin passed on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete.	MT	87			1.6179623728%
2318	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.		0			
a	20 Tons	EACH	4			0.0020130903%
b	25 Tons	EACH	2			0.0011674638%
c	40 Tons	EACH	6			0.0049504050%
d	50 Tons	EACH	8			0.0078878890%
e	60 Tons	EACH	8			0.0091748996%
f	100 Tons	EACH	3			0.0037624246%
2319	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	268			0.0529440878%
2320	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..Payment breakup - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	7			0.0894626739%
2322	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete.Payment breakup - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	112			0.6876744771%
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	13			0.0055763125%
2324	Conducting ultasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	13			0.0007385589%
2325	Conducting ultasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	27			0.0006681676%
2326	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	27			0.0010736369%
2327	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	27			0.0011433090%
2328	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other structures inluding all materials, labour, electrodes etc complete (all materials to be supplied by the contractor).	NO	5			0.0011867960%
A2332	Fabrication, fitting and fixing of MS packer plates/shim plates of various thicknesses between structural steel column base plates and concrete pedestals/foundations, including material, cutting to size, edge preparation, handling, stacking, transportation, erection, leveling, alignment, welding/tack welding wherever required and all consumables, complete in accordance with approved drawings, technical specifications and Engineer-in-Charge's instructions. (BHEL shall supply structural steel free of cost)	MT	25			0.0296529787%
2400	**ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. All Works are to be carried out as per MORTH specifications. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			

3X800MW NTPC Telangana STPP Stage-II BTG						
BOQ CUM RATE SCHEDULE FOR PACKAGE 2B						
Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)						
ST NO	**Item Description**	**UNIT**	**QTY**	**RATE**	**AMOUNT**	**Weightage**
			Pkg#2B	**INR**	**INR**	**Pkg#2B**
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete. (As per MORTH specifications)	CUM	1908			0.0097824308%
A2402	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using excavated soil within a lead upto1km soil and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete. (As per MORTH specifications)	CUM	574			0.0025010070%
A2404	Providing & laying granular sub-base using close graded material conforming to specification, mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge. (As per MORTH specifications)	CUM	1205			0.1262128236%
A2406	Providing & Laying **water bound macadam sub base/base course** with stone aggregate 53 mm to 22.4 mm size stone conforming to **MORTH specification (Table 400-7) (IRC 19 -grading -3)** mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications, drawings and directions of Engineer-in-Charge. (As per MORTH specifications)	CUM	17			0.0019273008%
A2410	Providing & laying 40mm bitumen mastic wearing course over concrete pavement with industrial bitumen of grade 85/25 conforming to IS : 702, prepared by using mastic cooker and laid to required level and slope, including providing antiskid surface with bitumen fine grained hard stone chipping of approved size at the rate of 0.005 precoated cum per 10 sqm and at approximate spacing of 10 cm centre to centre in both directions, pressed into surface protruding 1 mm to 4 mm over mastic surface, including cleaning the surface, removal of debris etc. all complete as per specification, drawings and as per direction of engineer-in-charge. (Considering bitumen using 10.2% as per MORTH specification). (As per MORTH specifications)	SQM	4016			0.1973148200%
A2413	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (As per MORTH specifications)	RM	1122			0.0456988334%
B2413	Supplying and laying 300mmx250mmx150mm deep PCC block of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (As per MORTH specifications)	RM	102			0.0012463318%
A2415	Supply and laying 200mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. (As per MORTH specifications)	RM	328			0.0183291556%
A2419	Providing and laying concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required), in road pavement using fully mechanized paver fitted with electronic sensors, provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	1305			0.2531689018%
A2421	Providing & laying concrete of grade M10 for dry lean concrete (DLC) with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (Cement will be supplied by BHEL free of cost as per TCC)	CUM	620			0.1089491829%
B2421	Providing and laying of plain cement concrete of grade M15 using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete	CUM	256			0.0459059710%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
A2422	Providing and fixing in position **MS dowel bar** reinforcement including surface painted with fusion bonded epoxy and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.	MT	16			0.0589229507%
A2423	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of **mild steel reinforcements** including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer.	MT	1			0.0036826844%
A2424	Providing & installation of **bitumen impregnated fibre board** of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	RM	1632			0.0145448689%
A2425	Providing and filling in position **hot applied bitumen sealing compound (Grade A)** of specified thick(20mm x25 mm) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	1632			0.0054539737%
A2426	Providing and laying **debonding strip/tape** of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	1632			0.0037675903%
A2427	Providing & laying **80 mm thick precast interlocking concrete pavers of grade M35** of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	2410			0.1107165804%
A2428	Providing and laying **20mm thick sand layer** below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	2410			0.0073826856%
A2429	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15 etc all complete as per specification, drawing and as directed by Engineer.	SQM	4016			0.0027878256%
A2430	Supplying, fixing and removing formwork for concrete road pavement complete as per specification and as directed by the engineer-in-charge.	SQM	204			0.0061616096%
A2431	Providing and installation of Variable message signs including Cantilever type MS supports etc. all complete as per drawings, specifications, manufacturer's recommendations, indian standards.	EACH	10			0.0016551296%
2700	**RAIN WATER HARVESTING**		0			
2701	Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.	RM	75			0.0039861184%
2702	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	256			0.0100106197%
2703	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	52			0.0018465962%
2704	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	35			0.0054130249%
2705	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	86			0.0133005755%
2706	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	21			0.0032478150%
2707	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	69			0.0068710221%
2708	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	171			0.0025781767%
2709	Supply and laying 350mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	852			0.0893534066%
2600	**LEVELING & GRADING: Levelling & grading works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
2601	Cutting of trees having girth more than 300 mm measured at a height of 1m above ground level including removal of roots, stacking the serviceable material like trunks, branches etc at specified area within the plant boundary and disposal of unserviceable parts/materials within a lead upto 1km etc all complete.		0			
a)	300mm upto 600mm girth	Nos	10			0.0002115124%
b)	601mm upto 1200mm girth	Nos	15			0.0014226323%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
2602	Earth work in stripping of top soil upto a maximum depth of 0.30 m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	Sq.m	6400			0.0070391321%
2603	Earth work in excavation upto any depth below ground level in all types of soil including ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	22508			0.0999751354%
2604	Earth work in excavation upto any depth below ground level in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc (but does not require chiselling or blasting) including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	579			0.0047761611%
2606	Earth work in excavation upto any depth below ground level in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	410			0.0073538626%
A2607	Earth work in excavation upto any depth below ground level in hard rock requiring chiselling (pneumatic rock breaker attachment with excavator machine etc but does not require manual chiselling or blasting) including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	410			0.0098635416%
A2608	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil directly from excavation within a lead upto 1km and compacted as specified including dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	500			0.0012267718%
A2609	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock from compulsorily excavated earth available within a lead upto 1km and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	2001			0.0106655543%
A2610	Extra over ST No. 2601 to 2606, A2607, A2608 & A2609 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1 km.		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2B

Package 2B - Main Power Block Unit#4 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, CCR Building, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QTY	RATE	AMOUNT	Weightage
			Pkg#2B	INR	INR	Pkg#2B
b	Carriage for disposal of serviceable/unserviceable material/ earth with compaction as per specification	CUM	23325			0.0098670527%
A2612	Providing and laying 300mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	763			0.0945709940%
2900	**AC & VENTILATION DUCT**					
2901	Supplying, Erection & Commissioning of finished GSS (zinc coating 275 GSM) AC & Ventilation ducting complete with hangers/ supports, Duct supporting structure, threaded rods, anchor fasteners, nuts for threaded rods, support angle, cleats , Consumable items like gaskets, sealant, adhesives, rivets, screws, nuts, bolts, washers etc. (including testing of ducting system by Smoke Test/Light Test) required for completion of leak proof Ducting system etc. with required fire dampers, motorised actuators , Grills/Diffusers ,Dampers & Thermal Insulation with Cladding of AC & exposed Ventilation Ducting all complete work as per technical specification and instruction of Engineer-In-Charge Payment Breakup: 1. On Supply & Receipt at site - 60% 2. On completion of erection, fixing, alignment, welding, etc. complete as per description/specification - 40% **Note: -Contractor shall ensure availability of commissioning supervisor at Site during commissioning of AC & Ventilation System. Also, Civil contractor to rectify/ address any leakages/malfunctioning in duct work without any commercial implication to BHEL**					
(a)*	18G.	SQM	3400			0.2875552822%
(b)*	20G.	SQM	4200			0.3517760148%
(c)*	22G.	SQM	6700			0.5392202752%
(d)*	24G.	SQM	5000			0.3983087457%
(e)*	Fire damper with auto resetting, limit switches, indication lamps etc.	SQM	67			0.0574747618%
(f)*	Motorized actuator with single phase power supply for the above fire damper.	NO*	85			0.0763961206%
(g)*	Supply air grill/diffuser with VCD (Extruded Aluminium).	SQM	67			0.0383255380%
(h)*	Return air grill/diffuser without VCD (Extruded Aluminium).	SQM	85			0.0416819031%
(i)*	MS Grills/Diffusers with VCD complete with fixing frames, nuts, bolts, gasktes,washers etc.	SQM	170			0.0324146237%
(j)*	MS Grills/Diffusers without VCD complete with fixing frames, nuts, bolts, gasktes,washers etc.	SQM	25			0.0040864611%
(k)*	GI Volume control dampers for Duct.	SQM	120			0.0588450396%
(l)*	Thermal insulation with cladding of AC (supply & return air) & exposed ventilation ducting with finish as per specification	SQM	12000			0.5095910075%
						100.0000000000%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A2	Deployment of QA/QC Engineer B.E (Civil with min. 3 years of experience) or Diploma holders with min. 5 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent. Preference - Part time experience in QA/QC lab.	Man-Months	**0**			0.0000000000%
A3	Deployment manpower for QA/QC Testing Fresh B.E with min. 70% marks or Diploma holder with 3 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man-Months	**0**			0.0000000000%
A4	Deployment of Laboratory Technician Previous experience of working as a Lab. Assistant in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man-Months	**0**			0.0000000000%
A5	Erection, commissioning and load testing of 265T/ 25T (capacity of each crane) x 29 M span double girder EOT Cranes with common lifting beam of 447T capacity, including unloading, handling, transportation & storage at site, in-site transportation, assembly, rail fixing & alignment, DSL fixing, erection & commissioning, trial run at site, and carrying out performance guarantee/ Functional/ Demonstration tests at site and final handing over to end customer in flawless condition for project complete with all accessories for the total scope defined as per technical specifications, drawings, crane clearance diagram etc. as per directions of BHEL Engineer-In-Charge. (Erection & Commissioning of all items required for successful completion of work for all the units(#3,#4 & #5) shall be in the scope of this agency and included in this item. No separate payment in this regard shall be applicable.) **Payment Break up:** **i. Erection/ Alignment: 60%** **iii. Commissioning: 20%** **iii. Load testing, Trial run, Performance guarantee/ Functional/ Demonstration tests at site and final handing over to end customer: 20%** **Notes:** **1. Supervision of Erection & Commissioning (E&C) of above said cranes is in the scope of Crane manufacturer/ Supplier. E&C of cranes shall be carried out under expert supervision of the crane manufacturer/ Supplier.** **2. Specification for Erection & Commissioning of 265T/25T Double Girder TG Hall EOT Cranes and Crane clearance diagram for TG hall EOT crane 265T/ 25T is enclosed with tender for contractor's reference purpose only.** **3. Project specific Erection and Commissioning (E&C) procedure as submitted by the crane supplier shall be provided to the contractor during execution of contract and same shall be followed for erection and commissioning works.**	Nos.	**0**			0.0000000000%
100	**EARTH WORK: Earth work in excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.**					
A101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.					
a	Depth from ground level but not exceeding 2 m	CUM	55293			0.2457043925%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	21668			0.1201187392%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1379			0.0095861175%
A102	Extra over ST No. A101, A103, A104, A105, A106 & B106 for dewatering of ground water by sump pump method as per IS 9759. Ground water table shall be lowered up to 1 m below the founding level to make the site workable for foundation construction till backfilling up to ground level. Mode of measurement shall be the quantity of excavation of soil including ash below ground water table to founding level of the footing.	CUM	76069			0.7358726415%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A103	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		0			
a	Depth from ground level but not exceeding 2 m	CUM	27647			0.1824570566%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	14446			0.1144040788%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4136			0.0393057126%
A105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, removing of surface water accumulated due to rain or any other reason but excluding dewatering to lower the ground water table, dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		0			
a	Depth from ground level but not exceeding 2 m	CUM	27647			0.5218271818%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	18057			0.4091421471%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	11030			0.2999061560%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	713			0.0232763473%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	148			0.0055543359%
A106	Earth work in excavation in hard rock requiring chiselling including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		0			
a	Depth from ground level but not exceeding 2 m	CUM	4147			0.0943291609%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	2709			0.0739438718%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1655			0.0542091286%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	107			0.0042057112%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	22			0.0009944345%
B106	Earth work in excavation in hard rock requiring chiselling (pneumatic rock breaker attachment with excavator machine etc but does not require manual chiselling or blasting) including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge for following depths below ground.		0			
a	Depth from ground level but not exceeding 2 m	CUM	23500			0.5345394940%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	15348			0.4189333866%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	9376			0.3071086343%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	606			0.0238192618%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	126			0.0056953978%
107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.		0			
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.		0			
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	67351			0.3052127458%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A109	Extra over ST No. A101 and A103 to A108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.		0			
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	220512			0.1261237786%
A111	Supplying and filling clean and well graded natural river sand (conforming to IS 383 with grading zone I to III) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	73674			7.6303085688%
112	Extra over item no. A101 for shoring and strutting in trenches including packing cavities (wherever required as instructed by engineer) all complete as per specification and as directed by engineer in charge.		0			
a	upto depth of 2m	SQM	5775			0.0881663489%
b	Depth exceeding 2 m but not exceeding 4 m	SQM	525			0.0100246779%
200	**CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
201	Concrete of grade **M7.5** (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	8013			1.4944450545%
202	Concrete of grade **M10** (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from FGFL (Finished Ground Floor Level)**. (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	58			0.0108171488%
203	Concrete of grade **M15** (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level **upto depth of 10m from from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224)	CUM	87			0.0162257232%
204	Concrete of grade **M20** (1 part cement, 1.5 part sand, 3 parts of 10-20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete below finished floor level **upto depth of 10m from from FGFL (Finished Ground Floor Level).** (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224).	CUM	116			0.0213587014%
A205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTMC-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing **below finished ground floor level (FGFL) upto a depth of 10m from FGFL** (For depths greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224), for the following:		0			
b	M 25 Grade	CUM	52341			10.5055474728%
c	M30 Grade	CUM	5			0.0010088473%
A206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in superstructure for any shape, position or thickness etc complete including use of high performance PCE-based BIS approved water reducing admixture of Type-G/F as per ASTMC-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing **upto 10m level above FGFL (Finished Ground Floor Level)**		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	(For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 225), for the following.					
b	M 25 Grade	CUM	9344			1.9313777997%
A207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in **machine foundations** for TG, Gas Turbine, ID/FD/PA fans, BFP, Mills, Crusher House, CHP-AHP civil works, FGD,etc at all elevations below/above finished ground floor level (FGFL) (except top decks supported over vibration isolation system, BFP deck and TG deck) but including TG foundation Columns,BFP foundation Columns with addition of suitable plasticizer conforming to IS 9103(latest) **or ASTM C494** to achieve a slump ~~more than 125~~ **in the range of 100 mm -150** mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing all complete.		0			
a	M 30 Grade	CUM	7029			1.5830698063%
b	M 35 Grade	CUM	3025			0.6844839927%
A208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported on vibration isolation system (excluding supply and installation of vibration system) and top deck of ~~TG &~~ BFP foundation at all levels including addition of suitable plastisizers conforming to IS9103 **or ASTM C494** to achieve a slump ~~more than 125~~ **in the range of 150 mm -180** mm in concrete as per manufacturers recommendation, preperation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embeddments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic pulse velocity test report - 25%.	CUM	0			
a	M 30 Grade	CUM	833			0.2897498396%
b	M 35 Grade	CUM	333			0.1163138492%
B208	Providing and laying of **M50** grade of concrete as per IS:456 & Design Mix of concrete as per IS 10262-2009 by using suitable % of supplementary cementitious materials like Micro-silica conforming to IS:15388 / Micro fine-GGBFS conforming to IS:16714 along with OPC-43 grade cement as per IS-269-2015 [*The OPC-43 cement content shall not be more than 450 kg/cum of concrete as per IS:456*] for reinforced concrete works by using graded aggregate in top deck of all machine foundations supported / not supported on vibration isolation system (excluding supply and installation of vibration isolation system) and top deck of TG foundation at all levels including addition of suitable superplasticiser conforming to IS-9103 & ASTM C-494,Type-G category to achieve medium to high flow concrete as per EFNARC-specifications (*Slump flow by Abrams cone shall be 650 -800 mm & T50 cm slump flow should be 2-5 sec*) as per manufacturer's recommendation, preparation of scheme for concreting, getting it approved by engineer in charge, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, levelling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate as per IS-2386, Part-VII & Part-VIII etc. all complete as per specification, drawing and instructions of engineer in charge, including ultra-sonic pulse velocity (UPV) testing as directed by engineer in charge, rectification of the defects in concreting observed by UPV testing by cement/epoxy grout etc., but excluding formwork, staging, reinforcement, embedments and temperature control of concrete.	CUM	2064			0.7228432894%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	Payment terms - a) After casting 75% ; b) After receipt of ultrasonic pulse velocity (UPV) test report - 25%.					
A209	Extra over St. No. 205 to 208 for **controlling of temperature** of fresh concrete to less than **25 degree** centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	13285			0.8539514249%
210	Extra over ST Nos. 205 to 207 for conducting **UPV test** for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	1167			0.0413321626%
A211	Providing and **encasing of structural steel member** with concrete using nominial aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. **(Wire mesh to be paid separately)**		0			
b	M 25	CUM	987			0.1840780318%
212	**Screed concrete** conforming to IS 456 with sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 225) or thickness, drains etc complete as per following.		0			
a	01:02:04	CUM	459			0.0856046774%
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in **precast works** like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent preacast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.		0			
b	M25	CUM	661			0.2244250614%
A214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in **water retaining/conveying structures** including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate upto depth of 10m from finished ground floor level (FGFL), (For depth greater than 10m from FGFL, extra over for additional depth to be paid in Item No 224). for following grades. Watertightness is to be ensured including structural grouting if required.		0			
b	M 30	CUM	1301			0.2839670282%
215	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.		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
a	Plain cement concrete of all grades	CUM	139			0.0078401472%
b	Reinforced cement concrete of all grades	CUM	341			0.0297507889%
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	1705			0.0069013429%
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	273			0.0000960891%
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	171			0.0016476373%
219	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	1450			0.0093779245%
222	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	580			0.0021435256%
225	Extra over item no. A206 and 212 for height above FGFL (Finished Ground Floor Level) as per following:		0			
(a)	Height exceeding 10m from FGFL but not exceeding 20m	CUM	1655			0.0336404167%
(b)	Height exceeding 20m from FGFL but not exceeding 30m	CUM	1486			0.0543301903%
(c)	Height exceeding 30m from FGFL but not exceeding 40m	CUM	1486			0.0724402537%
(d)	Height exceeding 40m from FGFL but not exceeding 50m	CUM	177			0.0100691587%
(e)	Height exceeding 50m from FGFL but not exceeding 60m	CUM	177			0.0107856031%
(f)	Height exceeding 60m from FGFL	CUM	177			0.0118680571%
300	**FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.**		0			
301	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams & slabs (for which scaffolding work not required for vertical support of bottom face of formwork), mass concrete, trenches, grade slab, paving etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.		0			
a	Upto Depth 10m From FGL	SQM	69403			2.1802075951%
b	Depth exceeding 10m From FGL	SQM	87			0.0030009358%
A302	Fairface form work with good quality water proof Plywood with film face of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge.		0			
a	For Height Upto 20m from FGL	SQM	26029			0.9837212209%
b	For Height More Than 20m from FGL	SQM	174			0.0072726761%
A303	Fairface Formwork with good quality water proof Plywood with film face of minimum 18mm thickness and smooth surface for TG superstructure (above base raft level for columns, connected beams & TG Deck only) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights complete including chamfering of edges, deshuttering as per drawing,specification, and instruction of engineer in charge..	SQM	2667			0.7512598958%
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.		0			
a	Upto 150 mm depth	Each	435			0.0048420712%
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	435			0.0079042506%
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	435			0.0138372232%
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	435			0.0214161173%
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	435			0.0306409328%
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	435			0.0403442138%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
305	Extra over item no. 301 and A302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.		0			
a	Extra for Curve Shuttering for Item No. 301	SQM	435			0.0027368229%
400	**REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	2			0.0076603762%
A402	Transporting, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500D / Fe-550D confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. **(BHEL will supply Reinforcement Steel within the plant premises. In case, reinforcement steel is supplied at BHEL Storage Yard located approx 12km outside the plant premises, the cost of transportation shall be paid as per St No D2301)**	MT	7587			4.5657704852%
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcemnet bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall beconducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.		0			
a	12mm Reinforcement bar	Nos.	3			0.0000850019%
b	16mm Reinforcement bar	Nos.	3			0.0001379301%
c	20mm Reinforcement bar	Nos.	3			0.0001997016%
406	Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR or any other Grade confirming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).		0			
a	12mm dia	Nos.	3			0.0000079194%
b	16mm dia	Nos.	3			0.0000084474%
c	20mm dia	Nos.	3			0.0000105592%
d	25mm dia	Nos.	3			0.0000155749%
e	28mm dia	Nos.	3			0.0000192706%
f	32mm dia	Nos.	3			0.0000242863%
g	36mm dia	Nos.	3			0.0000318097%
h	40mm dia	Nos.	3			0.0000426329%
407	Transportation from BHEL yard, straightening, cutting, bending, welding / binding in position of old cut piece TMT steel reinforcements confirming to IS:1786 including binding wire, labour for placing in concrete, chair and other misc. works complete all as per bar bending schedule and as directed by Engineer. [Old cut piece TMT Reinforcement steel will be issue by BHEL Store free of cost]	MT	34			0.0227315785%
A407	Providing lap/fillet welding of reinforcement bars of TMT steel of grade Fe-415 / 415D / 500 / 500D / 550 / 550D conforming to IS 1786 (latest) using metal arc welding including cleaning of bar surface, positioning, welding, grinding of weld bead and finishing, including cost of electrodes, equipment, labour, tools and plants etc. all complete as per IS 456 and IS 9417. Measurement shall be done for the number of joints welded comprising of weld deposition of 10d length (with max. 5d length at a stretch). Here, d is the diameter of the reinforcement bar. (BHEL to supply steel free of cost)		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
a	20 dia of reinforcement bar	MT	1200			0.0115623671%
b	25 dia of reinforcement bar	MT	900			0.0102556612%
c	28 dia of reinforcement bar	MT	60			0.0007813837%
d	32 dia of reinforcement bar	MT	40			0.0006335544%
500	**Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
502	Providing and laying underbed/topping grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.	SQM	9190			0.0699492412%
A506	Providing and applying **two component, instant setting, 100% solids spray applied hybrid polyurea polyurethane liquid applied elastomeric seamless waterproofing membrane** meeting the requirements of LAM as per ASTM C836 and having excellent tensile strength of 15MPa (As per ASTM D412), elongation more than 450% (as per ASTM D 412), tear strength of 60 Kn/m (As per ASTM D1004/ASTM D624), adhesion to concrete of 2MPa (as per ASTM D 4541), abrasion resistance of 60mg loss (1 Kg,CS 10 Wheels,1000cycles - As per ASTM D4060), Shore A Hardness of 85 (As per ASTM D2240), resistance to hydrostatic pressure head of 7 Bar (As per ASTM D 5385/ DIN 16726), puncture resistance of 1000N (As per ASTM E154), water vapour permeability of 25 mg/m2/day (As per ASTM E96), Impact resistance of 17 N.m (As per ASTM D2794), Low temperature crack bridging ability up to 3.2mm (As per ASTM C 1305), dynamic crack bridging ability class B 3.2 (as per EN 1062-7 Method B- B3.2) with no crack observed in the coating after 20000 sinusoidal cycles, resistance to root (As per CENTS/14416) and fire resistance of class B (As per EN 13501-1).The coating shall be applied with a total consumption of 1.6 Kg/Sqm to achieve a **total system DFT of 1.5mm**, thereby satisfy the requirements of LAM as per ASTM C898 and shall be applied on the entire horizontal surface extending up to 300mm above the FFL on the vertical surface as per the methodology. The application system includes base preparation of cleaning, brushing and removal of flaky materials, grouting the porous area with cementitious grout, proper coving between slab and wall junctions and priming the surface with two component solvent free epoxy primer which is applied with a consumption of 200 grams per Sqm, followed by spray application of hybrid polyurea waterproofing coating. Protective geo textile fabric of minimum 150GSM over the entire membrane with proper overlaps shall be applied. The application of waterproofing treatment shall be carried by authorised applicator of approved Manufacturer of Waterproofing materials. Item includes surface preparation, polyscrim cloth /non woven geotextile fabric, polymerised mortar base preparation, etc. all complete as per specifications and directions of engineer in charge.	SQM	9190			0.4699560977%
A510	Providing and laying **cement concrete chequered and designed roof / floor tiles of 22 mm thickness** and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	9190			0.2915225599%
B510	Providing and laying **cement concrete chequered roof / floor tiles of minimum 20 mm thickness** and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (polysulphide joint sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with polysulphide joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).	SQM	2297			0.0688903366%
513	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	426			0.0011058163%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A514	Providing and applying **two component transparent polyamide cured epoxy sealer coating** (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by epoxy phenolic coating (solid by volume minimum 63%) of **minimum 400 micron DFT**. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams,wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	1530			0.0424517563%
B514	Providing and applying **Food grade two-component hi-build solvent-free polyurethane coating complying to FDA Ttitle 21**, **Part 175.300** on the inner side of the water storage tanks having 100% volume solids, adhesion of concrete > 1.5 Mpa (ASTM D4541).With the recommended primer applied by roller in one layer and with a Coverage 200 – 400 gms / m². Mix the 2 component PU and apply manually or by spray as per the manufacturer like Myk arment,laticrete or equivalent or equivalent makerecommendation and apply a total thickness of minimum1 mm in 2 or more coats. The Products shall conform to have following properties. Thickness: 1000 Microns, Tensile strength: 9 Mpa ASTM D 412 after 7 days of minimum 400 micron DFT over absolutely dry, clean and dust free surafe of water retaining structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862, including surface preparation, primer etc. all complete as per specifications and direction of engineer-in-charge.	SQM	218			0.0067098331%
A518	**Providing and laying water proofing treatment for wet areas like toilets,kitchen,pantry for sunken slab etc.**material with min.two coats of Acrylic Polymer Modified Flexible Cementitious Waterproofing Coating material like penetron SF-50 or equivalent make applied @ 0.70 to 0.8 0 Kg./m2 per coat .The First layer shall be of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm.The Second layer shall be of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm.The integral waterproofing coat applied (confirming to IS 2645) , while maintaining a gap of 4 to 8 hours between the coats all complete with water ponding test as per IS Code and as directed by engineer in charge**.**	SQM	568			0.0153591434%
A519	Providing and laying an angular fillet at junction of roof level and vertical wall / parapet wall of min.150mm x 150mm, cast in-situ concrete mix of 1:11/2:3 followed by 12mm thk 1:4 cement sand plaster. A latex based bonding agent should be added (10% by weight of cement) and also a glass cloth must be inserted while the angle fillet is being constructed etc. all complete as per specification & as directed by engineer in charge	RM	353			0.0094831592%
600	**JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A601	Supplying & installation of preformed bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.		0			
a	12 mm wide joints.	SQM	29			0.0008153053%
b	20 mm wide joints.	SQM	29			0.0009760697%
c	25 mm wide joints	SQM	1450			0.0708128989%
d	50 mm wide joints	SQM	290			0.0294224405%
603	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves (10 mm thick baker rod to be paid separatly):		0			
a	25mmX25mm groove size	RM	290			0.0082040890%
b	50mmX25mm groove size	RM	2900			0.1542572880%
c	20mmX25mm groove size	RM	174			0.0039379627%
604	Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.		0			
a	10mm X 40mm	RM	145			0.0004465678%
b	12mm X 25mm	RM	725			0.0019138621%
c	20mmX25mm	RM	1787			0.0062111646%
605	Supplying and installation of commercial quality of expanded polystyrene products from reliable manufacturers as approved by the Engineer, as		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.					
a	12 mm wide joints.	SQM	15			0.0000494964%
b	20 mm wide joints.	SQM	15			0.0000626955%
c	25 mm wide joints	SQM	29			0.0001390740%
d	50 mm wide joints	SQM	29			0.0003151493%
A605	Supply and installation of Polystyrene flexible board conforming to IS 4671 (type-1) having density 20 Kg/ Cu. as joint filler at joint of concrete including nailing, coating of both faces with coal tar pitch /bitumen etc. all complete.		0			
a	100 mm thick	SQM	3106			0.0779102402%
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)		0			
b	230 mm wide and 8 mm thick	RM	586			0.0127621607%
d	230 mm wide and 6 mm thick	RM	87			0.0008803766%
Ae	230 mm wide and 10 mm thick	RM	87			0.0013397035%
613	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	290			0.0034066746%
614	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	290			0.0077320030%
A615	Providing and fixing 300 mm wide Stainless steel strip having minimum thickness 3mm over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	290			0.0083444389%
A616	Providing and applying epoxy resin concrete bonding agents like Nito bond, Mykarment or equivalent in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete as per specification and direction of engineer-in-charge.	SQM	58			0.0005993947%
700	**MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including manual cleaning with primer coat of chlorinated rubber based zinc phosphate primer of Minimum 50 Micron Dry Film Thickness (DFT) welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. Payment Breakup: 1. On Supply & reciept of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40%	MT	260			1.2539985032%
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. Payment Breakup: 1. On Supply & reciept of materials at site - 70% 2. On completion of fixing, welding, etc. complete as per description/specification - 30%	MT	183			1.0889626077%
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.		0			
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	62			0.0764848824%
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	32			0.0414978107%
704	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffoling, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.		0			
a	MS pipes of all diameters	kg	9249			0.0455757889%
b	PVC pipes / conduits of all diameters	kg	1735			0.0287781069%
c	UPVC pipes / conduits of all diameters	kg	290			0.0060605634%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:		0			
i	8mm Dia	Nos	44			0.0001006647%
ii	10mm Dia	Nos	44			0.0001277668%
iii	12mm Dia	Nos	44			0.0001587406%
iv	14mm Dia	Nos	44			0.0002419826%
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:		0			
i	HST M8	Nos	4			0.0000491005%
ii	HST M10	Nos	4			0.0000679311%
iii	HST M12	Nos	4			0.0001226632%
iv	HST M16	Nos	4			0.0002150565%
v	HST M20	Nos	4			0.0003757329%
vi	HST M24	Nos	4			0.0007442504%
vii	HST M32	Nos	15			0.0037212519%
f	Chemical Expansion fasteners (galvanised)of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc:		0			
i	HAS-E5.8 M8	Nos	4			0.0000962651%
ii	HAS-E5.8 M10	Nos	4			0.0001172076%
iii	HAS-E5.8 M12	Nos	4			0.0001490613%
iv	HAS-E5.8 M16	Nos	4			0.0002532458%
v	HAS-E5.8 M20	Nos	4			0.0003940356%
vi	HAS-E5.8 M24	Nos	4			0.0005415130%
vii	HAS-E5.8 M25	Nos	15			0.0021152851%
viii	HAS-E5.8 M32	Nos	15			0.0027075650%
A704	Drilling & grouting of BHEL supplied Reinforcement bars into Existing RCC to a specified depth of with HILTI or equivalent chemical to fix the bars for future structural usage		0			
i	12 dia bars	RM	10			0.0002120647%
ii	16 dia bars	RM	10			0.0002512219%
iii	20 dia bars	RM	10			0.0002903791%
iv	25 dia bars	RM	10			0.0003392156%
v	28 dia bars	RM	10			0.0003686934%
vi	32 dia bars	RM	10			0.0004078506%
707	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete. Payment Breakup: 1. On Supply & reciept of materials at site - 60% 2. On completion of fabricating, fixing, welding, etc. complete as per description/specification - 40	MT	200			0.9184162412%
800	**GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	29			0.0011955259%
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	3			0.0034730658%
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	3			0.0034336007%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	48			0.1081477295%
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	15			0.0330675780%
806	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	12			0.0010369173%
900	**DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
902	Providing and fixing **teak wood frame panel door shutter** as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preperation of working drawings,godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	9			0.0032798317%
903	Providing, fitting and fixing **solid core flush door shutte**r as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldihyde synthetic resin, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anoidised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	58			0.0188094370%
A904	Providing and fixing **single or double steel door shutters with 35mm (min) thick flush** design shutter as per **IS 4351** comprising of two outer sheets of **18 gauge(1.2mm min.) steel sheets** rigidly connected and reinforced inside with continuous vertical 20 gauge **(1.0 mm)** stiffeners, spot welded in position at not more than 150mm on centres including void filled with **mineral wool (density as per specification),** all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	296			0.1737142078%
A906	Providing and fixing electrically operated, self openable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid	KG	615			0.0196302226%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
B906	Providing and fixing electrically operated, self operable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	112			0.0780868441%
A907	Providing and fixing Automatically closing **Fire proof steel flush insulated doors** along with frame of minimum 44mm thk flush shutter 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 center to center of approved make conforming to IS:3614-2021(latest revision), & CBRI tested- ISI marked for both Single leaf & Double leaf, comply IS/ISO 3008,satisfying LPA regulations and shall carry a unique label with certification/test report number,fire rating embossment, fixed at all elevations, with or without removable panels,with panic bar,panic trim,smoke seal with following fire rating using galvanised MS sheets for frames conforming to IS 277, made out of 1.6mm (16 SWG) for both frame and shutter, G.I. sheet (min.zinc coating 120 gsm), and leaves, mineral wool / PUF/ any other fire retardant insulation material filled with required density, mastic caulking and grouting the frame, reinforcing and insulating the shutters with fire retardant material, with panic devices, including all fittings, fire rated vision glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (min.94 kg/cum density) complete and shall be fire proof as per IS:3614, NBC requirements and as per specification. Fire Rated Door Shop drawings shall be submitted by the fabricator/manufacturer like Navair,4c Fire or equivalent for approval before exectuion. Minimum ratings shall be 2 Hrs. All hardware fittings shall comply to 2 Hours fire rating. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	206			0.2720819785%
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)		0			
a	Openable type	SQM	44			0.0057495058%
b	fixed type	SQM	44			0.0036820068%
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventillators, partitions, railing etc with extruded standard tubular and other sections aluminium alloy grade 63400 including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stailess 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	Kg	8352			0.2792707625%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
A909	Providing and fixing powder coated aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventillators, partitions, railing etc with extruded standard tubular and other sections of aluminium alloy grade 63400 including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, **powder coated in required shade with minimum thickness 50 micons** according to relevant IS , fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stailess steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	22886			0.7928144802%
A910	Providing, fabricating, designing, supplying and fixing of **Aluminium composite panel cladding (ACP)** in pan shape in solid,metallic colour,wooden colour,stone finish of approved shades made out of **4mm thick aluminium composite panel (weight of panel should be minimum 8.1 kg/sqmt) material consisting of 3mm thick FR grade Class A2 as per EN 13501**,mineral core sandwiched between two Aluminium sheets **(each 0.5mm thick BMT).**The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the “specification for coated coil for the exterior building application” issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to Class A2, s1,d0 as per EN-13501-1.The manufacturer must furnish the FPC and Certificate of conformity of EN13501-1 for Class A2,s1,d0 from the certifiers and Product must be supplied from the Certified Unit which has been mentioned on the FPC and COC.The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months’ exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the copping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor or equivalent. **The system shall be designed to withstand a wind**	SQM	4147			0.9588883132%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS316 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor shall provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturer of ACP. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :		0			
a	Over head hydraulic door closures	Each	23			0.0022312993%
b	Floor mounted Hydraulic door closers	Each	23			0.0046518289%
A912	Providing and fixing pressed steel frames(complying general requirements of IS 4531) fabricated from **1.6 mm thick** M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	Kg	6985			0.0605416188%
A913	Providing and fixing in position **rolling** s**hutter of hot rolled double dipped galvanised steel** lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides of 75mm wide and 3mm thick(min.) and arrangements for inside and outside locking with push and pull operation including wire springs, top/hood cover 0.9mm thick (min.) , factory galvanized, primed & field painted, partly grilled (as required) with approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%		0			
b	Mechanically Operated	SQM	32			0.0065988206%
c	Electrically & Mechanically operated	SQM	228			0.0600973828%
A915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.		0			
ad	6 mm thick toughened glass	SQM	1469			0.1575184527%
bd	6 mm thick toughened heat reflecting tinted glass	SQM	375			0.0422211646%
e	Providing and fixing of 3.0mm (min.) thick fire retardant and UV resistant polycarbonate clean toughed profile sheet of approved make conforming to IS 14434 in cladding and roof as per specification all complete.	SQM	330			0.0313859544%
h	6 mm thick clear toughened safety glass	SQM	50			0.0055216022%
ah	8 mm thick clear toughened glass	SQM	263			0.0366613640%
bh	10 mm thick toughened glass	SQM	216			0.0346261704%
j	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	522			0.0985715553%
ak	One outer 6mm thick tinted heat-reflecting toughened glass and one inner 6mm thick clear toughened float glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance) ≤ 62 %, SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) 0.2 ≤ 0.32 and U- Value 1.2 TO 2.0 W/MSq K,The properties of performance glass shall be as per	SQM	51			0.0718507771%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	detail design values as approved by engineer incharge.The glass to be used should be from the approved manufacturers Saint Gobain or equivalent of glass and should be free from distortion and thermal stress.					
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	284			0.0039109663%
917	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	29			0.0022060451%
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	13			0.0021820228%
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	15			0.0037300513%
A920	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer & painting etc. all complete as per specification. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	35			0.0056837306%
A923	Providing and fixing Electrically operated sliding doors, self operable/closing, G.I. framed with fire resistant glass, with Fire resistant glazed door system shall be of uniform profile 50X50 mm with 14mm EI 20 glass for Interior application. Fire Resistant Glazed Door System shall have 120 minutes of integrity and radiation control (EW 120) with symmetrical (Bi-Directional) fire protection. The frames shall be cold rolled profiles as per EN standard EN 10327/ Indian Standard IS 513. The door frames are cold rolled from 1.6 mm steel sheet to form a profile of 50 mm x 50 mm on all sides. The door shutter shall have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The glass must be minimum 14mm clear,120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 38 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4. The shutters shall be fixed to the frame using Weld-on hinges of dimensions 179mm X 20mm. The profiles shall have groves to incorporate Fire Resistant gaskets. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel selftapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 6 mm Calcium Silicate setting blocks. The door shall be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV) or equivalent. The inactive leaf (in case of double leaf only)shall be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a TUV audited facility. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The doors shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles) all complete as per specification. The door shall have water tightness level of 8A when tested as per EN 1027. Fire Rated Door shall be of Makes- Saintgobain,Navair,4C fire,Matrix or equivalent. all complete as per specification.(item includes the cost of glazing)	SQM	22			0.0859446406%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
A926	Providing & fixing Fully Glazed non load bearing fixed partition with 120 minutes Fire Rating,with valid fire test certificate from national or international lab with Partition Frame manufactured from cold rolled profiles of minimum 1.5 mm steel sheet pressed to form a profile of nominal size 50 mm x 50 mm on all sides & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of approved shade and color. The glass panels shall beToughened interlayered minimum 14mm thick,Contraflam Lite, Non Wired, with 120 minute fire rating for integrity and radiation control (EW 120) and insulation (I 20),with 30minute full insulation, with a light transmission of 86% and a sound reduction of 38 dB and manufactured in Intertek & TUV audited facility and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested for 5000 hours of UV resistance as per EN ISO 12543-4.The glass shall provide bi-directional (symmetrical) fire protection. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape or as per the test evidence with cross section of 4 x 15 mm as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 5 mm thick calcium silicate setting blocks. The installation shall be through trained and certified by Vetrotech certified Installer.The maximum glazing size shall be as per details design and drawings. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c.The partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026.The partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049.The partitions shall have water tightness level of 8A when tested as per EN 1027. The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120).Fire Rated partition shall be of Makes- Saintgobain,Navair,4C fire, Matrix or equivalent. all complete as per specification.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	102			0.1306098186%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A927	Providing & fixing minimum 30mm thick Hermetically sealed double glass (DGU) consisting of Fire resistant glass of minimum 14mm thick, clear, toughened,interlayered borosilicate glass,120 minutes fire rated for both integrity & radiation control ,remain transparent under both fire and non fire condition and 6mm thick toughened tinted glass with min.10mm air gap filled with inert gas. The partitions shall be 120 minutes Fire Rated,Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from cold rolled profiles Min.1.5 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of nominal size 50mm x 50 mm on all sides or suitable profile to accomodate the glass & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150 mm from the edges & every 500mm c/c .The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and color.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30minute full insulation, Non Wired Toughened Interlayered glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 1(B)1 category of impact resistance as per EN 12600. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification.The glass shall be tested for 5000 hours of UV resistance as per EN ISO 12543-4.The glass shall provide bi-directional (symmetrical) fire protection. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape or as per the test evidence with cross section of 4 x 15 mm as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non- combustible 5 mm thick calcium silicate setting blocks. The installation shall be through trained and certified by Vetrotech certified Installer.The maximum glazing size shall be as per details design and drawings. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c.The partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026.The partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049.The partitions shall have water tightness level of 8A when tested as per EN 1027.The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) all complete as per specification.Fire Rated partition shall be of Makes- Saintgobain,Navair, 4C Fire,Matrix or equivalent. all complete as per specification.(item includes the cost of glazing)Design,Shop drawings for the item with all construction and anchoring details along with fire rating test reports of complete system shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	44			0.0553865450%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A928	Providing and fixing of fully glazed steel fire door (single/ double leaf) with 120 minutes fire rating, of integrity and radiation control (EW 120) fabricated with min.1.5 mm thick galvanized steel sheet. The door frames are manufactured from cold rolled min.1.5 mm thk. galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 50 mm x 50 mm on all sides. The door shutter would have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The overall door opening shall be as per tested evidence and tested as per EN 1634-1 in an accredited international laboratory.The frame shall be finished with approved fire resistant primer or Powder coating of min. 30 micron as per approved shade.The sections have a special insulating infill.The test is conducted in IFTS as per EN 1634-1: 1999.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30 minute full insulation, Non Wired Toughened Interlayered glass, with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass should be compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a special ceramic tape with cross section of 5 x 20 mm as per the test evidence. The shutters should be fixed to the frame using weld-on hinges of dimensions 179mm X 20mm. The profiles shall have grooves to incorporate fire-resistant gaskets. The doors shall incorporate drop down seal at the bottom. The glass should be held in its place with the help of 1.25 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm or as per the test evidence. The beading shall be clipped on using stainless steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 5 mm thick calcium silicate setting blocks. The door should be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV), Concealed door closer or equivalent. The inactive leaf should be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a Intertek & TUV audited facility.The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The shutters should be fixed to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt.all complete as per specification and Design,Shop drawings, along with hardwares for the item with all construction and anchoring details along with fire rating test reports shall be got approved before execution. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	44			0.0685115355%
A929	Providing and fixing of frameless Mullion-less toughened Glass fixed partition on patch fittings, made of 12 mm thick, including fittings,hardware, fixing the fittings in floors, soffits, jams including necessary fixtures, screws, ss handels 1000mm long ,C Shape (both side),sealant wherever required and SS cover over patch fittings. etc all complete as per specification. The glass shall be firmly fixed through extruded aluminum extrusions on top, bottom and extreme sides. The glass panels shall be easily removed and refitted (during breakage) without using any special tools. The junction of glass to glass shall be properly secured using extruded PVC or sealant. Sealant shall be properly filled using molded rubber pattern /tool. Finish: anodized or powder coated as per architects drawings / specs. Safety film shall be applied on the glass to avoid shattering.The glass to be used should be from the approved manufacturers of glass Saint Gobain or equivalent make.The glass shall be distortion free and free from thermal stresses, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification,drawing and instructions of engineer in charge.Fabrication drawings should be prepared and approved by enginner incharge before commencement of work as per site condition. Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	SQM	102			0.0610138546%
A930	Providing and fixing motorized curtain (operated with remote control also) mechanism at all heights.	SQM	87			0.1115727820%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A931	Providing and fixing SS Logo/Signature ICON of NTPC as per Guidelines of "Client" complete in all aspects. Logo to be fabricated in Stainless steel finish as per approved Pantone Shades of Client Guidelines along with proper provision of fixing arrangement of Logo on Partition Surface/Glass Surface/Acrylic Surface etc.Shop drawings for the item with all construction and anchoring details shall be got approved before execution, all complete as per specification and approved by Engineer incharge.	SQM	10			0.0074516579%
A932	Providing,fixing & Installation of manually operated,frameless Vertical Roller venetian blinds with premium fabric quality with 5% openness factor HARDWARE; TOP TUBE : Made of extruded aluminium with 38 mm Dia. and wall thickness of 1.2 mm with spline adoptable to accommodate. CLUTCH MECHANISM : Moulded plastic having self lubrication with Glass fibre reinforcement, having a minimum lifting capacity of 8 lbs weight capacity - 8 lbs Head adoptability - 38 mm OPERATING CHAIN : PLASTIC / STEEL ball chain adoptable to the clutch pitch for smooth operation of blinds. LOCKING MEMBER : Plastic/ steel stop locks for limit setting adoptable to the steel chain. Bonding (Fabric > Tube) : 30/36 mm wide double sided adhesive tape of 3M for strong holding capacity. SPRING BOOSTERS: provided as per the requirement Bottom Bar : aluminium extruded circular section with powder coated finish, having a Min. weight to be 365 gms / Rmt for a perfect fall of fabric to avoid warpage / floating. Ends are covered with end caps to give a perfect finish,installation at site at all heignt complete s per approved sample and instruction of engineer incharge.	SQM	131			0.0291829817%
A933	Providing and fixing dry wall partition up to ceiling height with 12.5 mm thick double skin fire rated Glass Reinforced Gyproc plaster board conforming to IS: 2095: Part 1:2023 (Board with BIS certification marks) Type F / EN520:2004-TYPE-F / ASTM C473/C1396-TYPE X, having thermal conductivity 0.24w/m°k., with 100 mm overall thickness of partition, consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia. meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia. bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.	SQM	44			0.0022845923%
A934	Providing and fixing MS grills of approved design/pattern, with approved standard section for security purpose made of M.S. Flats / M.S. square bar of approved design shall be provided to suit security requirements made of M.S. Flats / M.S. square bar of approved design and fixed to the openings of windows/ventilator etc. with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%	KG	174			0.0010888755%
A935	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only	KG	131			0.0033164553%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	weight of grill to be measured for payment). Payment Breakup: a) On Supply & receipt of material at site - 50% b) On complete execution as per item description - 50%					
A936	Providing and fixing Frameless single/ double leaf fully Glazed Doors (with etching film of 3M or equivalent make having Project / Purchaser's Logo and other design) on stainless steel patch fitting with minimum12mm thick toughened glass, SS handles (both side), Floor spring, door closure, locking arrangement, in required sizes as per detail drawings, including all fittings and fixtures of approved make Dorma or equivalent complete as per specification, drawing and instructions of engineer in charge.	SQM	11			0.0065799255%
1000	**BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
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.		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	512			0.1592389611%
A1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm upto 10m level above finished ground floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1014), places and position above plinth including raking out joints, curing, scaffolding etc complete but excluding plastering and painting.		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	3039			1.1934630440%
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	641			0.3109549041%
A1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm upto 10m above finished ground floor level (FGFL) (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1015), places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every fourth layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. (Reinforcement payment shall be made seperately as per applicable BOQ in 400 Series)		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making).	SQM	830			0.0399500022%
B1003	Providing **factory made composite modular light weight aerated concrete panels,** (minimum 2 hours of fire rating) consisting of 2 fiber reinforced cement sheets (minimum 4 mm thick) on either side of light weight concrete core, having minimum compressive strength of 35 Kg / Cm2 and the density in the range of 700-900 Kg. / cu.m. of minimum 75 mm thickness, to provide external wall and internal partition at all levels, capable of sustaining wind pressure of 3.00 M height (H) within limiting deflection of span/250, fixed in position in tongue and groove jointing system by screwing the panels to top and bottom U channels, (channels minimum 1.25 mm thick and galvanised to grade 180 (minimum) as per IS : 277), fixing U profiled top and bottom channels to concrete / primary steel members which are placed at the maximum vertical spacing of 4.5m with the help of galvanised steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fibre glass tape (minimum 50 mm wide and minimum 0.5 mm thick) or by any other suitable material, so as to ensure that the entire construction done with the light weight aerated concrete panels are weather proof and panel surfaces are flush for painting, creating opening for doors / windows /ventilators / ducts / pipes/fans/AC etc. and finishing the opening face with the same U profiled galvanized steel channel which is used at the top and bottom. Payment Breakup: a) On Supply & receipt of panels at site - 50% b) On complete execution as per item description - 50%	SQM	3392			0.3732822310%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
1005	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	36			0.0033926836%
A1006	Providing and encasing of structural steel member with masonary work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6 upto 10m level above finished ground floor level (FGFL) (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1014). Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)		0			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	44			0.0142866509%
1007	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	29			0.0003521506%
1008	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	36			0.0039232854%
1009	Supply and placing in position mild steel wire fabric(Chicken Wire Mesh) 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	145			0.0013524626%
1010	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	36			0.0021192393%
A1013	Providing and laying Autoclave Areated concrete (AAC) blocks having dimensions of 625 mm x 250 mm. thickness ranging from 100 mm to 300 mm conforming to I.S. :2185(part III) in walls, chambers etc. at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing. The jointing cement sand mortar in the composition of 1: 6 (Cement: sand) shall be used with suitable plasticizer of Myk arment,laticrete or equivalent. Sand having modulus of fineness 1.1 shall be used. The horizontal and vertical joint thickness shall be approximately 10 mm. In case of partition walls (100 mm /125 mm thk.) the joint reinforcement i.e. 1 number of 6-8 mm diameter bars shall be placed at every alternate course to be anchored properly with the main structure. All other structural requirements like stiffening of masonry, joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in IS 6041 – 1985, IS - 1905. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	CUM	1684			0.4980374355%
A1014	Extra over item no. A1002, A1006 & A1013 for height above FGFL (Finished Ground Floor Level) as per following:		0			
a	Height exceeding 10m from FGFL but not exceeding 20m	CUM	751			0.0294731249%
b	Height exceeding 20m from FGFL but not exceeding 30m	CUM	727			0.0513690276%
c	Height exceeding 30m from FGFL but not exceeding 40m	CUM	22			0.0020723387%
d	Height exceeding 40m from FGFL and above	CUM	15			0.0016485612%
A1015	Extra over item no. A1003 for height above FGFL (Finished Ground Floor Level) as per following:		0			
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	145			0.0003508747%
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	145			0.0006315745%
1100	**DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
1101	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.		0			
b	50mm thick	SQM	388			0.0072038651%
1200	**PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer**		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	- in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)					
A1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar as applicable upto 10m above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete		0			
a	Cement Mortar 1:6	SQM	15753			0.3375309697%
A1202	Providing 12mm thick plaster internal/external surfaces of building/boundary wall in cement mortar as applicable above finished ground floor level (For height greater than 10m from FGFL, extra over for additional height to be paid in Item No 1206) on walls finished to a smooth finish as per specification all complete.		0			
a	Cement Mortar 1:6	SQM	17504			0.3196000174%
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	13527			0.2225842780%
A1206	Extra over Item 1201 to 1202 for plastering on exterior walls over & above 10m height from FGFL.		0			
a	Height exceeding 10m from FGFL but not exceeding 20m	SQM	13103			0.0288245236%
b	Height exceeding 20m from FGFL but not exceeding 30m	SQM	12325			0.0488034844%
A1207	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	870			0.0016076442%
1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (chicken wire mesh to be paid separately)		0			
A1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over 0.9 mm thick G.I. chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of enginner in charge (chicken wire mesh to be paid separately)	SQM	44			0.0015002919%
A1210	Providing drip course in cement mortar(1:3) in parapet, chajjas, windor/door heads, architectural facias, fins,etc all complete with all labour, T&Ps as per specification, drawing and instructution of engineer.	RM	706			0.0011182234%
B1210	Providing mouldings and cornices 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 incharge.	RM	87			0.0001953378%
1300	**FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
1301	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	1768			0.0033759296%
A1304	Two or more coats of **Low VOC (volatile organic compound) Acrylic distemper** of approved brand shade and as per manufacturers guidelines Nerolac / Berger /JK wall maxx,/Asian or equivalent, to give smooth, hard, durable & glossy even shade finish over a coat of primer over prepared plaster surface as per manufacturers guideline.All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	31945			0.1784958019%
A1305	Providing and applying **two or more coats of acrylic emulsion plastic paint with low VOC (volatile organic compound)** as per IS 15489,relevant latest code of approved brand, shade and manufacturer guidelines Nerolac / Berger /Sakarni /JK maxx /Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have **VOC content limit less than 50 grams per litre** All	SQM	1540			0.0115454723%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.					
B1305	Providing and applying two or more coats of **exterior quality Acrylic emulsion paint** with low VOC (volatile organic compound) as per IS 15489,relevant latest code of approved brand, shade and manufacturer guidelines Nerolac / Berger /Sakarni /JK maxx /Asian or equivalent to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have VOC content limit less than 50 grams per litre. All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge	SQM	1540			0.0115454723%
A1306	Providing and applying 2 or more coats of oil resistant paint(epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer 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	2344			0.0400551370%
A1317	Providing and applying 2 mm thick Acrylic wall putty (in Two Coats) over cement plastered surfaces in interior of building including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	46785			0.2857047710%
A1319	Providing and applying **two or more coats of weather coat paint of Premium Acrylic Smooth Paint with Silicone additives, over and including Texture base coat**, of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification. Textured base coat (Two or more coats applied @ 6.5Kg/10 sqm over and including priming coat of exterior primer applied @ 2.20Kg/10 sqm) of High Quality Exterior Acrylic Modified resin and special quality Silica Quartz with Trowel Texture as per selection of owner.	SQM	15753			0.1185165590%
1400	**FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	39565			1.1767365929%
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm 20 well graded) and top layer of 10mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete as per specification.	SQM	173			0.0043918076%
A1404	Providing and laying **interlocking M35 Grade concrete blocks confirming to IS:15658 in paving** with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing). **Kerb blocks or concrete block specified for various uses shall be precast blocks made of alkali-activated concrete /Geopolymer concrete as per IS:17452-2020.** Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
a	80mm	SQM	2419			0.1155811700%
A1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 30mm thk of 1 cement : 1.5 sand : 3 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, moulding, cornice, granite polishing etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	2568			0.4826670547%
A1416	Providing and laying vitrified ceramic tiles of size 600x600/600X1200 with Digitally Glazed (Matt/glossy/mettalic finish) in flooring, skirting approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Orientbell or equivalent, complete including underbed of 1:3 cement mortar 40 mm average thick underbed for flooring and 12 mm thick underbed with cement mortar 1:3 for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following..For Dado chemcial motar/adhesive to be used of approved manufacturer SP-35 of Laticrete or approved equivalent. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
b	9mm thick tiles In flooring	SQM	5687			0.4077421768%
c	7mm thick tiles In skirting and dado upto specific height	SQM	36			0.0021287427%
d	9mm thick tiles In skirting and dado upto specific height	SQM	122			0.0091810342%
B1416	Providing and laying Digitally glazed vitrified ceramic tiles of polished and matt variety of size 800x800/1000x1000 (Matt/glossy/mettalic finish) in flooring, skirting of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo,Varmora, or equivalent , complete including 40mm average thick underbed of cement mortar 1:3 for flooring with neat cement slurry and 12mm thick underbed for dado/skirting with cement mortar 1:3 with neat cement slurry @3.3Kg/sqm etc.,3mm groove joints as per approved pattern pointed neatly with 3X4mm stainless epoxy grout SP- 100 of Laticrete, Luxture or approved equivalent in approved colour to match colour of tile etc. all complete for following. .For Dado chemcial adhesive to be used of approved manufacturer SP-35 of laticrete or approved equivalent. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
b	9 to10 mm thick tiles In flooring.	SQM	4350			0.4153990042%
c	9 to10 mm thick tiles In skirting and dado upto specific height.	SQM	174			0.0173651065%
A1417	Providing and laying Digitally glazed vitrified ceramic tiles (DGVT/PGVT) of matt finish of size 1000x1000mm/1200x1200 from reputed / approved manufacturer as Simpolo,Varmora or equivalent underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in maufacturing of vitrified tiles to be used to engineer in charge)Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
b	9.00 mm (min.) thick tiles In flooring	SQM	1261			0.1221376396%
d	9.00 mm (min.) thick tiles In skirting and dado upto specific height	SQM	145			0.0145389724%
A1418	Providing and laying heavy duty Antiskid full body vitrified tiles 18-20 mm thick of size 600x600mm in flooring, of approved shade, colour, pattern and make from reputed / approved manufacturer as Simpolo or equivalent ,complete including underbed of 1:3 cement mortar average 30mm thick for flooring with neat cement slurry @3.3Kg/sqm etc.all complete. Full body Vitrified Tiles shall be laid on properly laid levelled floor, with spacer/groove joints 3 to 5mm wide & 8 to 10mm deep & shall be filled with approved Epoxy Grout (stainless epoxy grout SP- 100 of Laticrete) with matching shade mix of 0.70kg of organic coated filler of desired shade (0.10kg of hardener and 0.20kg of resin per kg). Full body Vitrified Tiles shall have water absorption less than 0.5%, Modulus of Rupture more than 38N/mm2, Breaking strength more than 7500N, Moh's scale more than 6, Abrasion resistance less than 144 mm3 and coefficient of friction more than 0.4. Vitrified Tiles shall generally conform to IS: 15622. All complete (including cost of epoxy grouting)as per engineer incharge. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
a	400X400 mm		0			
b	600X600 mm		4691			0.6324049372%
1419	Providing and laying G**ranite stone slab of 20mm thickness single piece** for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete.	SQM	44			0.0109782652%
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 20mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	300X300 mm	SQM	440			0.0227270028%
A1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over suitable undercoat of adequate thickness (as recommended & applicable in accordance with clause 10 of IS 4443 - 2025). The tiles shall be applied with 6mm thick resin type bedding mortar **(epoxy resin or furane resin)** as per IS: 4443 & 4832 - Part 2 and including preparation of surface, application of suitable primer, pointing of joints of tiles with acid/ alkali resistant epoxy/ furane mortar up to a depth of 20mm, suitable top coat sealing as per IS 4443, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	20mm thick	SQM	10			0.0026028525%
b	38mm thick	SQM	1674			0.5011929762%
c	75mm thick	SQM	20			0.0068861639%
A1424	Providing & fixing chemical resistant **(AR)(Acid / Alkali) bricks (115mm thick)** conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by **18mm thick bituminastic** followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	10			0.0026297031%
B1424	Providing & fixing chemical resistant **(AR)(Acid / Alkali) bricks (75mm thick)** conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by **18mm thick bituminastic** followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	123			0.0251692503%
1427	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses: Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%		0			
a	5mm thick	SQM	698			0.0353776755%
b	7mm thick	SQM	58			0.0032178402%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A1431	Providing and fixing, laying min.15 mm thick Engineered woodden panel flooring and skirting of of reputed / approved manufacturer Greenlam,Boen,or equivalent multi-layered engineered wooden planks treated with VOC free lacquers and stains to provide extra strengthening, longevity and durability to planks. In all planks each layers are arranged at cross grain to each other for provide the balancing and stability to all three layers.Top layer of flooring finish with UV hardened , acryliclaquer,and made up of about 3.0 mm thick thermosetting re-polish able natural veneer setting on a core of about 10 mm thick pine wood that produce natural characteristic of wood with 2.0mm thick bottom ply based veneer balancing layer. The planks are joint to each other through plankloc system with glue less technology system and laid on 2mm thick dual barrier underlay protecting sheet having anti-bacterial, Anti-termite, fire-resistant, noise reduction, high wear and abrasion resistance, water resistant properties.The system includes all accessories like beading, Quadrant, Veneered/solid wood skirting, end profile etc.as per as per manufacturer specification and approved by Engineer Incharge. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	290			0.0424951010%
B1431	Providing and laying minimum 50 mm thick wooden flooring, consisting of 37 mm thick hardwood planks, finished with min. 11mm thick wooden flooring of greenlam,Boen,Bekker,robina or equivalent with min. plank size 193x1195mm (material class shall be 34 as per EN13329) of approved color and shade, over 2 mm expanded polystyrene foam and polythene sheet under laying all complete as per manufacturer specification. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	464			0.1347085824%
A1432	Providing and fixing **Rubber flooring over cement concrete floor min. 4mm thick with sheet size of 602 mm x 602 mm**. Rubber flooring shall conform to IS 809. Rubber flooring shall consist of 100% virgin elastomer reinforcing agents, resins, curing agents, anti-oxidants and pigments. It shall have excellent abrasion resistance and shall have class-I fire rating. It shall be acid & alkali resistant and shall be of anti static grade. In general, BS code shall apply for their technical characteristics. etc all complete as per specifications. (Cement concrete flooring to be paid separately). Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	416			0.0495112666%
A1433	Providing and fixing Glass **mossaic tiles at finished plain** wall surface of size 24 mm x 24 mm x 3.8 mm thick (minimum) in in decorative murals and pattern of approved colour, shade, design , fixing in customize design, as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the vertical wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in- Charge:. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	87			0.0111715479%
A1434	Providing Dielectric epoxy based coating as per IS: 15652 shall be provided. The minimum dielectric strength for insulating floor (for all switchgear rooms up to and including 11 KV switchgear) shall be 45 KV ac rms (Class B as per Table-4 of IS-15652: 2006). The minimum thickness of insulation coating shall be 2000 microns for switchgear rooms up to 11 KV or as per the lab certificate fulfilling the dielectric strength requirement, whichever is higher. Dielectric test reports as per IS-2584 from a NABL accredited laboratory shall be submitted. Further, test reports for adhesion, tensile strength, scratch hardness, shore hardness, abrasion resistance shall be submitted in line with requirement of relevant national/international standard. The coating shall be high gloss finish and top color of coating shall be decided during the detailed engineering. Arc flash boundary and golden yellow safe boundary shall be provided. The item includes preparation and submission of procedure of approved manufacturer Mykarment or equivalent, of coating and conducting dielectric testing in a NABL accredited laboratory on a sample prepared during application at site, all complete as per specification.	SQM	3676			0.3403179376%
A1435	Providing and laying Tactile, tac liner & tac button fully vitrified unglazed porcelain tile (for guiding band/s for visually impaired persons), size 300x300 15mm thick having Tile body 10mm thick plus profile 4.5mm thick. Low water absorption below 0.5%. MOR > 38NCM2, MOH Hardness >7 & Breaking strength > 4000 N. Tile confirming RNIB (The royal national institute for the blind, UK) , DETR (Department of the environment, transport and the regions, UK), & ADA (American With Disabilities Act, USA) , high stain and chemical resistance. Confirming IS 4457: 2007. Tile will be laid on 20mm thick cement & sand mortar with	SQM	13			0.0008689506%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	cement slurry having 4mm spacer & pointing with 3X4mm stainless epoxy grout / polymer based SP- 100 of Laticrete or approved equivalent in approved colour. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%					
A1436	Providing, Designing & fixing Glass Reinforced Concrete (GRC) in approved design ,customized Screens,jalli, and Dome in shapes , size, texture, thickness, pattern and color fixing upto any height as per the drawing & approval,including necessary scaffoldings required for installation.GRC customized screens are from approved manufacturer Unistone or equivalent. Glass Reinforced Concrete (G.R.C) Screens shall be casted with 'Spray Mix' concrete design in approved size, pattern, thickness of 50mm on the outer Border & 25-30mm for Internal member and shade. The Screens should be made from ‘53 grade’ White Portland Cement manufactured by ‘JK Cement’ or 'Birla white', White Quartz fine graded sieved Silica Sand, Alkali Resistant Glass Fibre manufactured by 'NEG Japan, Owen Corning ‘Saint Gobain’ or equivalent, SuperPlasticizers manufactured by ‘Karochem’ or equivalent, Polymers manufactured by ‘Nova Polychem’ or equivalent and U.V resistant Synthetic inorganic pigments shall be used for pigmentation manufactured by ‘Phenochem industries or equivalent. The Screens casting shall take place with layering methodology using- Direct Power Spray machines. The GRC Screens flexural strength average L.O.P shall be above or equivalent to 6 N/mm2 & M.O.R shall be above or equivalent to 12 N/mm2 for tests done on 28 days cured samples. The fixing of Screens shall be done using ‘Dry fixing’ method onto structural support members i.e. R.C.C, Brick work, MS Framework. SS / MS Galvanized CLAMPS & PINS also if required fasteners to be used of Wurth, Hilti & Fischer or equivalent. All cast in socket to be epoxy primer coated. Electrodes to be used of advani, mangalam, esab or Victor brand or equivalent.GRC Customized Screens,dome shall be of Unistone make or equivalent.Installation to be done by specialized vendor in strict supervision if rerquired as per the manufacture's specification and as directed by Engineer.The colour, texture and pattern finish shall be as finalized by Architect enginneer. Payment Breakup: a) On Supply & receipt of materials at site - 50% b) On complete execution as per item description - 50%	SQM	13			0.0024780172%
1500	**ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A1501	**METAL DECK SHEET Type-I,** Designing, providing and fixing permanently **color coated galvanised MS troughed** metal sheet decking plate of approved colour **over roof purlins for cast-in-situ roof slab** as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum **0.8mm** with minimum trough depth of **44mm** (or as per design whiever is higher) of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to **the roof slab 40mm - 100mm thick** measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of **min 100 kg/sqm** (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minimum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahll be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 65 mm length manufactured from cold drawn round steel		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. **Measurement of profile sheeting shall be of the plan area of roof/ floor covered by MS trough metal decking. (Shear anchor studs to be paid separately under BOQ Item No A1503 & B1503).** Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%					
a	Span Upto 1800mm	SQM	25860			2.0024541517%
b	Span Exceeding 1800mm and upto 2500 mm	SQM	2494			0.1931214483%
A1503	Providing and fixing shear anchor studs for fixing metal deck sheet to floor structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of required size manufactured from cold drawn round steel barsconforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification.	QUINTAL	85			0.1776746011%
A1505	Designing, providing and fixing **External/ Inner sheet of Permanent colour coated metal cladding / roofing** with troughed M.S. sheets of **minimum 0.5 mm** bare metal thickness of **min.** g**rade G350 as per AS1397/grade SS340 class 4 or as per ASTM A792M/ grade S350 GD as per EN 10326 with zinc coating to class Z275 / aluminium zinc alloy coating to class AZ150** on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete **over columns, beams, bracings etc. at all levels.** The exposed face the sheet shall be permanently coated with s**ilicon modified polyster(SMP silicon content 30%-50%)** paint **or** super polyster paint of minimum **20 micron DFT** on exposed surface over **primer coat of minimum 5 micron** and minum **10 micron SMP** or **super polyester paint** over primer coat of **minimum 5 micron** on other face. SMP and polyster paint system sahll be of industrial finish of **product type 4** of AS/NZ2728. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	17176			0.9158957507%
1512	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.		0			
a)	For insulation in Sandwich Cladding	SQM	4143			0.2061574013%
b)	For underdeck insulation below RCC slabs	SQM	1088			0.0663458127%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A1519	Designing, providing and fixing **Factory made (Continous Line) prefabricated sandwiched Permanent colour coated metal cladding** comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as **plain** permanently colour coated for covering of exposed metal/concrete / brick surfaces with **insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m3 and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M 0k, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm,** sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet **0.5mm bare metal thickness (minimum)** of YS350 as per IS 15961 /grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyster (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of **industrial finish of product type 4** of AS/NZS 2728,troughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to **corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test**, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a **protected guard film** (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	4333			0.5513760971%
1600	**FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A1601	Providing and fixing **12.5 mm thick tapered/square edge glass fibre reinforced gypsum board false ceiling** conforming to IS : 2095 having fine texture finish, including providing and fixing of frame work at all levels, for all kind of work, consisting of light weight galvanised steel member (minimum 0.8 mm thick and galvanised as per IS: 277) having maximum grid size of 1200 mm x 600 mm for supporting panels of specified size, suspended from RCC structural steel or catwalkway grid above, with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm width along the perimeter of ceiling, supporting grid system (minimum 0.8 mm thick and galvanised as per IS: 277), expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete. (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer in charge.	SQM	1030			0.0556489513%
A1602	Providing, fixing and laying light weight **mineral fiber tile false ceiling** of minimum **thickness 15 mm** and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of **class 0/1 as per BS 476** with metal suspension grid system with galvanized Tees (silhouette T -profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc**.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.**(All mineral	SQM	774			0.0770631767%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	fiber board to be used should be with **appropriate % of recycled content.** The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturing of board to be used). (Mineral wool insulation to be paid separately). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%					
A1603	Providing and fixing permanently colour coated a**luminium false ceiling** of approved colour of **Luxalon** Hunter douglas,Newage or approved equivalent with corrosion resistant aluminium alloy panels of size **600 mm x 600 mm and 0.6 mm thk**. with clip on torsion spring system ,perforation patterns in combination with built in nonwoven tissue, acoustic fleece for providing good acoustic properties and installed with silhouette T-Grid (of profile 24 mm) in same or contrasting colours or with 6 mm recess joints. The whole system shall be level adjusting arrangement and shall be suspended as per manufacturer. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 at minimum grid distance 1.2m c/c shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately.) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	1439			0.3401909314%
B1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon 150C,300C, of Hunter douglas,Newage or approved equivalent with corrosion resistant aluminium alloy (Al grade 3105,Al-Mg AA 5050) panels of of minimum thickness 0.6mm with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.55. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc.(Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	726			0.1601890886%
A1604	Providing, fixing and laying permanently colour coated Designer metal aluminium false ceiling of approved colour with stove enamel finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in LINEAR, RECTANGULAR, SQUARE, CURVILINEAR , OPEN GRID type etc.as per detail engineering drawing , with corrosion resistance aluminium alloy (grade 3105) panels of minimum thickness 0.6mm,with perforation patterns in combination with built-in non-woven tissue, acoustic fleece for providing good acoustic properties with NRC 0.7. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc.Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	SQM	145			0.0299187382%
B1604	Providing, fixing and laying **permanently colour coated Designer metal Batten panel extruded aluminium false ceiling** of colour with stove enamel finish,powder coating in wooden finish of approved make of Luxalon Hunter douglas,Newage or approved equivalent in combination with demountable translucent stretch ceiling members etc.as per detail engineering drawing & manufacturer specification with corrosion resistance aluminium alloy (grade 3105,Al-Mg AA 5050) panels of minimum thickness MIN. 0.6mm.The battens shall have possibility of curvilinear arrangement.Batten ceiling of 1”x1” made up of extruded aluminum with “click-on system” and meet technical requirements of ASTM E84 having superior acoustics & highest health and safety standards The ceiling shall be installed using ceiling aluminum suspension system, etc. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc.Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be	SQM	145			0.0352896409%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%					
A1607	Providing and Fixing 12mm thick water resistant Calcium silicate board, gyproc or equivalent in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufaturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%	SQM	220			0.0227861799%
A1609	Providing , Design and fixing Aluminium **ceiling trap door in the false ceiling** matching with false ceilign material with min. 2mm thick powder coated inner and outer aluminum frame, corner fitting plate with stainless steel of 2mm thick fixture are with self-drilling screws and sealing strip of 6mm width and 6mm thick. Hinge operated through Push-lock mechanism.	SQM	29			0.0052391917%
1700	**RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.**		0			
1705	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	1015			0.0482739825%
1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	2057			0.1290551114%
1800	**MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
A1801	Providing and Filling in trenches, plinths, area paving, **grade slab,** other underground structures, **etc.** with 63 mm downgraded hard stone aggregate as per IRC specification watering and compaction to minimum of 90% Standard Proctor density, including filling the interstices of stone aggregates with sand) in layers not exceeding 200 mm in thickness all complete **as per drawings/specifications.** Payment shall be made for the measurement of the volume of the compacted fill.	CUM	17721			1.9047285234%
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	98			0.0145821336%
1804	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	3081			0.0328041249%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
1807	Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment). Drilling 12mm dia hole @300 c/c using material one liter per hole.	SQM	7493			0.0919774423%
1808	**Laying of earthing mats/rod**s including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	232			0.1709104403%
1809	Construction of **earthing system test pits** as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	58			0.0326096589%
1810	Construction of **below ground earthing system test links** as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	58			0.0250231094%
1811	Construction of **below ground earthing system earth electrodes** as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items & steel shall be supplied by BHEL free of cost.)	NO	58			0.0022762200%
1812	Construction of **below ground earthing system - Earth connection and riser pig tails** as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	NO	58			0.0018602740%
1813	Providing **Earthing pit** as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	NO	58			0.0974895853%
1814	Construction of **below ground earthing system test pits** as per drawing/ sketches including brickwork, plaster, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	NO	58			0.0567830136%
A1825	Providing & Laying 400micron thick polythene sheet below the concrete base including materials, labour etc. complete as per drawing / direction of engineer.	SQM	290			0.0013255388%
1,827	**Anti weed chemical treatment of soil** with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterlization test certificate, performance guarantee of three years etc. all complete.	SQM	7493			0.0016483413%
A1837	Providing **50mm thick premix** carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M or equivalent to 8% to 10% by volume including compaction. Separation layer of one tack coat @ 1Kg/sqm shall be spray after first layer of 30mm and sand shall be sprayed on the final surface of 20mm @ 0.5 cum/100 sqm. etc. all complete as per specification ans as guided by engineer-in-charge.	SQM	127			0.0045483044%
A1838	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	127			0.0038330919%
A1844	Providing and installation of Bio-Toilet near all the modular worker's sheds etc all complete as per specification.	NOS	2			0.0048252728%
A1845	Design, manufacturing, supply, delivery to site, and complete installation of a **field porta cabin of 40 feet by 10 feet length as per approved specifications and drawings**, including MS steel structural framework with primer and finish paint, insulated wall and roof sandwich panels, flooring with pre-laminated/plywood base and anti-slip vinyl/laminate finish, doors and windows with aluminium/glass frames, locks and accessories, furniture, concealed electrical wiring with sockets, switches, distribution board, lighting, fans, and earthing, ventilation/exhaust fans or small HVAC units where required, internal and external painting, and finishing works. The work shall also include transportation, loading, unloading, site assembly, alignment, anchoring, and miscellaneous accessories such as door stoppers, window fittings, sealants, and signage. All materials, workmanship, and installation shall conform to approved makes and specifications, and the work shall be executed as per the instructions and satisfaction of the Engineer-in-Charge, complete in all respects.	NOS.	0			0.0000000000%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A1847	Providing & fixing 200 dia HDPE pipe ISI mark 6 Kg/cm2 as per specification.	RM	870			0.0752857383%
A1849	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views,panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete).Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder.The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/customer.Engineering services of acoustic design, interior architecture, PA system, planning for firefighting system as per inputs provided by BHEL, external & internal finishes, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing,etc. are also included in this item. Any additon/changes in design as per customer requirement during detailed engineering stage, no extra payment is admissible. All design and drawings shall be submitted in soft and hard copies along with 3-D model.Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL Civil design wing, during detailed engineering stage for further sub-contracting of finishing works.	LS	0			0.0000000000%
A1850	Providing engineering services for Rain water harvesting including preparation of Rain water harvesting scheme, collection of required data, submitting to ground water board and getting approval from Customer and Ground water board at start & completion of work etc. complete as per statutory norms. The Engineering firm/person should be approved/accepted by ground water board and shall have similar experience of rain water harvesting for complete power plant. The scope shall include rain water harvesting for entire plant including Coal handling plant, ash handling plant inside plant boundary. The scope shall include preparation of rain water calculations, calculations for ground recharge/collection, ecnomical design of rain water harvesting with diferent options under discussion with BHEL and submit design, drawings, report to Ground water board, obtain approval from Ground water board & Customer and on completion of work get the completion approval for rain water harvesting from Ground water board. This includes visits to site with/without ground water board officials and rate of this item shall include all expeses of consultancy, site visits etc. required from start of work till final obtaining of compeltion approval from ground water board. Payment for execution of rain water harvesting ponds & ground water recharge scheme shall be paid separately.	LS	0			0.0000000000%
2000	**FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A2003	Supplying and erecting in position **2.4 m high PVC coated G.I. welded wire mesh fencing of minimum 4 mm diameter (including PVC coating) of mesh size 75mmX75mm including providing concertina of 600 mm height over chain link fencing**.The diameter of the steel wire for chain link fence (excluding PVC coating) shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. On every fourth post a clamping strip will be threaded through the links of chain link and bolted to the fence post with the help of security nuts and bolts.Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be of high tensile serrated galvanised wire (HTSW) with wire diameter of 2.5mm stretched to 6m and attached to two strands of galvanised HTSSW of 2.5 mm diameter by means of clips at 1m intervals. These two HTSSW strands will be attached to the fence posts with 12 mm security fasteners etc. all complete. (Structural post shall be separately under ST No. 2007) Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	RM	418			0.0548875258%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	MT	23			0.1162127445%
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. Payment Breakup: a) On Supply & receipt of material site - 60% b) On complete execution as per item description - 40%	MT	21			0.1195495962%
2100	**WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck/body bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	NOS	162			0.0077475779%
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	162			0.0068851520%
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:		0			
a	25mm nominal bore.	NOS	81			0.0038737889%
b	50mm nominal bore.	NOS	81			0.0055950770%
A2104	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, confirming to IS 15778, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings, all pipes shall be concealed and painted with anticorrsive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:		0			
a	15 mm nominal bore.	RM	812			0.0177738197%
b	20 mm nominal bore.	RM	1624			0.0383895886%
c	25 mm nominal bore.	RM	1624			0.0449741678%
d	50 mm nominal bore.	RM	812			0.0412444257%
A2105	Providing and fixing UPVC pipes conforming to IS:13592 complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:		0			
a	15 mm nominal bore.	RM	812			0.0032653040%
b	20 mm nominal bore.	RM	812			0.0043537386%
c	25 mm nominal bore.	RM	2030			0.0136054333%
d	50 mm nominal bore.	RM	2030			0.0272108665%
e	75 mm nominal bore	RM	812			0.0163265199%
f	100 mm nominal bore	RM	406			0.0108843466%
A2106	Providing and fixing 900mmx600mmx6mm thk mirror edge mounted with teak beading and minimum 12 mm thick plywood backing or mounted with SS Studs from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	81			0.0074680643%
A2108	Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete.	NOS	81			0.0049892406%
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	162			0.0050533880%
2113	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia shower arm all complete.	NOS	162			0.0055950770%
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. A2105. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a	500 litres capacity	NOS	16			0.0058287001%
b	1000 litres capacity	NOS	8			0.0058287001%
c	2000 litres capacity	NOS	4			0.0058287001%
d	5000 litres capacity	NOS	4			0.0145717503%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A2115	Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.	EACH	162			0.0069165049%
A2116	Providing and fixing metal storing cabinets 4(Four) Drawer Metal File Storage Cabinet with Central Locking System, Powder Coated (Approx size 54" X 18.5" X 27" Inch, Grey) all complete	EACH	81			0.0550384927%
A2117	Providing and fixing electric operated hand dryer with photo voltaic control.etc all complete..	EACH	81			0.0183473979%
A2118	Providing and fixing Recessed porcelain soap tray in shower area etc all complete.	EACH	162			0.0078580539%
A2119	Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	EACH	16			0.0014495243%
2200	**SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A2201	Supply and fixing glazed vitreous china Wash Basin 550 mm x 450 mm mounted over granite beveled edge counter fitted with photovoltaic control system for water controls, bottle trap with two taps and all requisite items.of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.		0			
b	Colored	EACH	81			0.0557476362%
A2202	Providing and fixing approved vitreous china laboratory basin/sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 32mm, 32mm CP brass waste coupling and 32mm CP brass bottle trap with necessaary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	8			0.0036123158%
A2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm with drain board of atleast 450 mm length with trap conforming to IS: 13983 including all fittings etc. all complete as per specification.	EACH	8			0.0032533016%
2204	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete as per specification, drawings and as per direction of Engineer-in-charge.		0			
b	Wall mounted	EACH	70			0.0556207933%
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete.	EACH	81			0.0316460404%
2206	Providing and fixing white flat back glazed vitreous china urinals of size 370x315x620 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	81			0.0910892783%
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.		0			
a	75mm dia pipes	RM	1624			0.0326530398%
b	110mm dia pipes	RM	1624			0.0516589667%
c	160mm dia pipes	RM	406			0.0178269878%
d	200mm dia pipes	RM	406			0.0259545223%
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a	200mm dia	RM	1508			0.0876446784%
b	300mm dia	RM	58			0.0054226094%
c	450mm dia	RM	44			0.0052403745%
d	600mm dia	RM	36			0.0052695884%
e	900mm dia	RM	22			0.0043556862%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following. Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a	150mm dia	RM	22			0.0009882568%
b	250mm dia	RM	22			0.0012767000%
c	300mm dia	RM	22			0.0014373765%
d	450mm dia	RM	22			0.0020152308%
e	500mm dia	RM	22			0.0023704612%
2210	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following: Payment Breakup: a) On Supply & receipt of material site - 50% b) On complete execution as per item description - 50%		0			
a1	250mm dia	RM	22			0.0016723684%
a2	300mm dia	RM	22			0.0020068421%
a	450mm dia	RM	22			0.0030102632%
b	600mm dia	RM	22			0.0036365140%
c	900mm dia	RM	22			0.0049122461%
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	41			0.0312394216%
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	41			0.0322766469%
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:		0			
a	100x100mm P or S Type.	EACH	81			0.0090875454%
b	150x100mm P or S Type.	EACH	41			0.0050219742%
c	150x150mm P or S Type.	EACH	41			0.0056966216%
2214	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	325			0.0352326620%
2215	Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete.	EACH	81			0.0078794364%
2216	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	4			0.0102528454%
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	8			0.0286011077%
2218	Providing and fixing white viterous urinal partitions of size 675x325x85mm all complete.	EACH	67			0.0109215533%
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	8			0.0075815339%
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitory works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.		0			
a	75mm dia pipes	RM	81			0.0052636488%
b	100mm dia pipes	RM	122			0.0102628767%
c	150mm dia	RM	122			0.0156895338%
d	200mm dia pipes	RM	41			0.0078107573%
e	250mm dia pipes	RM	41			0.0124972118%
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,concrete to be paid seperately)		0			
a	75mm dia	RM	122			0.0084969319%
b	100mm dia	RM	203			0.0166748428%
c	150mm dia	RM	203			0.0256955130%
d	200mm dia	RM	81			0.0148002259%
e	250mm dia	RM	81			0.0240552672%
f	300mm dia	RM	81			0.0290730177%
2223	Providing and fixing vertical wall mounted water geysers/heaters(minimum 5 star rating) of required capacity including all connections & fittings(angular stop cock and brass connection pipes, etc.) all complete as per specification.		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
a	15 Litres	Each	41			0.0246138069%
b	25 Litres	Each	41			0.0318743839%
2300	**STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.**		0			
A2301	**Erection of shop fabricated (field connections will be bolted type unless noted otherwise)** Mild structural steel, Medium and High Tensile structural steel with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading,transportation, unloading,collection of steel from stores inside the plant premises, alignment, true to line, level, plumb & dimension,temporary erection bolts & nuts, assembly, visual inspection, non destructive and special testing, rectification and correction of defective bolting works, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. The work shall be satisfactorily completed with required tightening of HSFG bolts. The shop fabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 meters and all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of structure but not for temporary erection bolts & nuts. High strength (HSFG) bolt including nuts and washer shall be paid separately. **(As applicable, Transportation of Shop Fabricated Structural Steel from BHEL Storage Yard located approx. 12 km outside the plant premises to NTPC Telangana Project Site shall be paid seperately in St No D2301) Payment Breakup:- 1) On Completion of erection-60% 2) Balance on completion of alignment,bolt tightening etc.-40%**	MT	13158			10.9301436850%
C2301	**Fabrication (Site Welded as per specification), transportation from fabrication yard and Erection of fabricated** (field connections will be welded type unless noted otherwise) Mild structural steel (Grade designation E250), Medium and High Tensile structural steel (Grade designation E350 or higher) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including loading,transportation,unloading,collection of steel, machining,welding, electrodes and other consumables, alignment, true to line, level, plumb & dimension,erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating,testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per approved drawing, specification and approval of engineer in charge. This item is excluding appointment of a seperate agency, approved by BHEL, for connection design & preparation of fabrication drgs (Using 3D model software like Tekla or equivalent) preparation and submission of fabrication drgs in	MT	2380			3.5590501983%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	consultation with BHEL. (Rate shall be exclusive of surface preparation and primer) **(Raw structural steel is supplied at BHEL Storage Yard, the cost of transportation shall be paid as per St No D2301) Payment Breakup:- 1) On Completion of Fabrication - 60% 2) On Completion of erection-25% 3) Balance on completion of alignment,welding etc.-15%** **Note:- BHEL shall provide land for fabrication yard free of cost inside the plant premises. In case, BHEL is unable to provide land free of cost to agency, the agency shall arrange land for fabrication yard outside the plant premises along with electricity & water in their scope and payment for the same shall be reimbursed as per St No C2301A**					
C2301A	Extra over Item No C2301 for arranging land (outside the plant premises) for fabrication yard including electricity, water, transportation from fabrication yard to project premises, safety, security, etc all complete for carrying out fabrication works for NTPC Telangana Project work.	MT	2380			0.284273368%
D2301	Transportation of Shop Fabricated Structural Steel, Reinforcement Steel and Structural Steel from the designated BHEL Material Storage Yard (located approximately 12 km outside the plant premises) to NTPC Telangana Project Site, including loading/unloading at the storage yard, transportation, handling, stacking, labour, supervision, tools & tackles, lifting equipment, vehicles, fuel, statutory permits, and all other consumables and incidental charges as directed by the Engineer-in-Charge (EIC). This item shall be applicable only for those materials stored at the designated BHEL Material Storage Yard outside the plant premises.	MT	11842			0.577044294%
A2302	Extra over ST NO. B2301,C2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) & providing and applying two component moisture curing zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) of minimum 70 micron DFT . Zinc dust composition and properties shall be Type-II as per ASTM D520-00. The primer coat shall be applied over shot blast cleaned surface including touch-up painting etc all complete as per specifcation and direction of engineer-in-charge. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT	2380			0.469974545%
A2305	Providing and applying intermediate coat of . two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT on steel surfaces already having primer coats, of approved make and shade to achieve an even shade including protection and cleaning, scoffolding etc. all complete.	MT	2380			0.277661868%
B2305	Providing and applying Top coat of twopack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT on steel surfaces already having primer coats of approved make and shade to achieve an even shade including protection and cleaning, scoffolding etc. all complete.	MT	2380			0.277661868%
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Breakup:- a) On Supply & receipt		0			

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%					
a	Minimum galvanisation of 610 g/sqm	MT	209			1.1622355015%
2307A	Supplying, fabrication, erection and alignment of factory made **Heavy Duty electroforged galvanised grating** units with mild steel having minimum hot dipped galvanisation conforming to IS:2062, finish blast cleaned to Sa 2 ½ finish or cleaned by acid pickling as per ISO 8501-1, in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%		0			
a	**Minimum galvanisation of 610 g/sqm**	MT	153			0.8508231183%
2311	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	1299			0.0085727825%
2312	Providing 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 etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	168873			1.2853686835%
A2312	Supply, fabrication, transportation and delivery at site of high strength structural bolts (of property class 10.9 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete. Payment Breakup:- a) On Supply & receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	259805			2.0814518544%
2313	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alighment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scafolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	15			0.0078210966%
2314	Addition to, alterations in and/or modifiction of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:		0			
a	In erected position	MT	15			0.0197959340%
b	In fabrication yard	MT	15			0.0164565745%
2315	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required 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 members not payable), scafolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	15			0.0124902603%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A2317	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner conforming to ASTM A240 S304 (Type 304) with Mill finish 2B cold rolled, annealed, descaled (pickled) and skin passed on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete.	MT	87			1.6827671086%
2318	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.		0			
a	20 Tons	EACH	4			0.0020937212%
b	25 Tons	EACH	2			0.0012142245%
c	40 Tons	EACH	5			0.0042905709%
d	50 Tons	EACH	7			0.0071783469%
e	60 Tons	EACH	7			0.0083495865%
f	100 Tons	EACH	3			0.0039131221%
2319	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	268			0.0550646734%
2320	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..Payment breakup - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	6			0.0797536709%
2322	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete.Payment breakup - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	95			0.6066582189%
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	12			0.0053535344%
2324	Conducting ultasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	12			0.0007090529%
2325	Conducting ultasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	24			0.0006177155%
2326	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	24			0.0009925685%
2327	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	24			0.0010569799%
2328	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other structures inluding all materials, labour, electrodes etc complete (all materials to be supplied by the contractor).	NO	5			0.0012343311%
A2332	Fabrication, fitting and fixing of MS packer plates/shim plates of various thicknesses between structural steel column base plates and concrete pedestals/foundations, including material, cutting to size, edge preparation, handling, stacking, transportation, erection, leveling, alignment, welding/tack welding wherever required and all consumables, complete in accordance with approved drawings, technical specifications and Engineer-in-Charge's instructions. (BHEL shall supply structural steel free of cost)	MT	18			0.0222052884%
2400	**ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. All Works are to be carried out as per MORTH specifications. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete. (As per MORTH specifications)	CUM	9819			0.0523589915%
A2402	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using excavated soil within a lead upto1km soil and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing,	CUM	2953			0.0133820320%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
	finishing to required lines, grades and slopes, tesing etc all complete. (As per MORTH specifications)					
A2404	Providing & laying granular sub-base using close graded material conforming to specification, mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge. (As per MORTH specifications)	CUM	6202			0.6756220190%
A2406	Providing & Laying **water bound macadam sub base/base course** with stone aggregate 53 mm to 22.4 mm size stone conforming to **MORTH specification (Table 400-7) (IRC 19 -grading -3)** mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications, drawings and directions of Engineer-in-Charge. (As per MORTH specifications)	CUM	89			0.0104941240%
A2410	Providing & laying 40mm bitumen mastic wearing course over concrete pavement with industrial bitumen of grade 85/25 conforming to IS : 702, prepared by using mastic cooker and laid to required level and slope, including providing antiskid surface with bitumen fine grained hard stone chipping of approved size at the rate of 0.005 precoated cum per 10 sqm and at approximate spacing of 10 cm centre to centre in both directions, pressed into surface protruding 1 mm to 4 mm over mastic surface, including cleaning the surface, removal of debris etc. all complete as per specification, drawings and as per direction of engineer-in-charge. (Considering bitumen using 10.2% as per MORTH specification). (As per MORTH specifications)	SQM	20672			1.0563408993%
A2413	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (As per MORTH specifications)	RM	5775			0.2446357044%
B2413	Supplying and laying 300mmx250mmx150mm deep PCC block of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (As per MORTH specifications)	RM	525			0.0066718828%
A2415	Supply and laying 200mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. (As per MORTH specifications)	RM	1460			0.0848549274%
A2419	Providing and laying concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required), in road pavement using fully mechanized paver fitted with electronic sensors, provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	6718			1.3554872684%
A2421	Providing & laying concrete of grade M10 for dry lean concrete (DLC) with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (Cement will be supplied by BHEL free of cost as per TCC)	CUM	3189			0.5828306793%
B2421	Providing and laying of plain cement concrete of grade M15 using 40 mm graded stone aggregate including providing and fixing formwork, compaction etc. all complete	CUM	1316			0.2454373757%
A2422	Providing and fixing in position **MS dowel bar** reinforcement including surface painted with fusion bonded epoxy and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.	MT	82			0.3140754233%
A2423	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of **mild steel reinforcements** including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer.	MT	3			0.0114905643%
A2424	Providing & installation of **bitumen impregnated fibre board** of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	RM	8400			0.0778618182%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
A2425	Providing and filling in position **hot applied bitumen sealing compound (Grade A)** of specified thick(20mm x25 mm) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	8400			0.0291962968%
A2426	Providing and laying **debonding strip/tape** of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	8400			0.0201687231%
A2427	Providing & laying **80 mm thick precast interlocking concrete pavers of grade M35** of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	12403			0.5926222620%
A2428	Providing and laying **20mm thick sand layer** below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	12403			0.0395166090%
A2429	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15 etc all complete as per specification, drawing and as directed by Engineer.	SQM	20672			0.0149248506%
A2430	Supplying, fixing and removing formwork for concrete road pavement complete as per specification and as directed by the engineer-in-charge.	SQM	1050			0.0329844239%
A2431	Providing and installation of Variable message signs including Cantilever type MS supports etc. all complete as per drawings, specifications, manufacturer's recommendations, indian standards.	EACH	53			0.0091235419%
2700	**RAIN WATER HARVESTING**		0			
2701	Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.	RM	61			0.0033718975%
2702	Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.	RM	209			0.0085000774%
2703	Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	42			0.0015512203%
2704	Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.	CUM	28			0.0045038676%
2705	Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.	CUM	70			0.0112596689%
2706	Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting.	CUM	17			0.0027344910%
2707	Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.	CUM	56			0.0057998382%
2708	Supply & fixing Netlon jali/ PVT net in the well dug for rain water.	SQM	140			0.0021953320%
2709	Supply and laying 350mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	696			0.0759165313%
2600	**LEVELING & GRADING: Levelling & grading works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. (Cement shall be provided by BHEL free of cost unless noted otherwise)**		0			
2601	Cutting of trees having girth more than 300 mm measured at a height of 1m above ground level including removal of roots, stacking the serviceable material like trunks, branches etc at specified area within the plant boundary and disposal of unserviceable parts/materials within a lead upto 1km etc all complete.		0			
a)	300mm upto 600mm girth	Nos	40			0.0008799366%
b)	601mm upto 1200mm girth	Nos	25			0.0024660224%
2602	Earth work in stripping of top soil upto a maximum depth of 0.30 m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	Sq.m	24100			0.0275684141%
2603	Earth work in excavation upto any depth below ground level in all types of soil including ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	17374			0.0802620983%

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
2604	Earth work in excavation upto any depth below ground level in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc (but does not require chiselling or blasting) including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	1059			0.0090855655%
2606	Earth work in excavation upto any depth below ground level in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	2780			0.0518599442%
A2607	Earth work in excavation upto any depth below ground level in hard rock requiring chiselling (pneumatic rock breaker attachment with excavator machine etc but does not require manual chiselling or blasting) including setting out, levelling, removing of surface water accumulated due to rain or any other reason (but excluding dewatering to lower the ground water table), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	2780			0.0695583733%
A2608	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil directly from excavation within a lead upto 1km and compacted as specified including dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	500			0.0012759081%
A2609	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm compacted thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock from compulsorily excavated earth available within a lead upto 1km and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	12338			0.0683969450%
A2610	Extra over ST No. 2601 to 2606, A2607, A2608 & A2609 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1 km.		0			
b	Carriage for disposal of serviceable/unserviceable material/ earth with compaction as per specification	CUM	18385			0.0080888173%
A2612	Providing and laying 300mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	1761			0.2270117670%
2900	**AC & VENTILATION DUCT**					

3X800MW NTPC Telangana STPP Stage-II BTG

BOQ CUM RATE SCHEDULE FOR PACKAGE 2C

Package 2C -Main Power Block Unit#5 (Powerhouse to ID Duct Area): - Civil, Structural & Architectural works including Levelling/Grading works of Power House, TG, BFP, CEP, Mill & Bunker Building, Mill Foundations, Boiler, ESP, Fan Foundations, ESP Control Room, ID Ducts (Boiler to Chimney area), CEP VFD Building, AC & Ventilation Ducting, Pipe Racks/Cable Racks, Sheds for Construction workers and O&M Workers, Structural Works of Entire Power Block Area (Powerhouse, Mill & Bunker, Pipe Racks and other misc structures), "Paving-Fire Protection System (FPS) & Sewerage Waterline Works", internal roads & drains, etc. (Excluding supply of Cement, Reinforcement Steel & Structural Steel which shall be issued by BHEL free of cost unless otherwise specified)

ST NO	Item Description	UNIT	QUANTITY	RATE	AMOUNT	WEIGHTAGE
			Pkg#2C	INR	INR	Pkg#2C
2901	Supplying, Erection & Commissioning of finished GSS (zinc coating 275 GSM) AC & Ventilation ducting complete with hangers/ supports, Duct supporting structure, threaded rods, anchor fasteners, nuts for threaded rods, support angle, cleats , Consumable items like gaskets, sealant, adhesives, rivets, screws, nuts, bolts, washers etc. (including testing of ducting system by Smoke Test/Light Test) required for completion of leak proof Ducting system etc. with required fire dampers, motorised actuators , Grills/Diffusers ,Dampers & Thermal Insulation with Cladding of AC & exposed Ventilation Ducting all complete work as per technical specification and instruction of Engineer-In-Charge Payment Breakup: 1. On Supply & Reciept at site - 60% 2. On completion of erection, fixing, alignment, welding, etc. complete as per description/specification - 40% **Note: -Contractor shall ensure availability of commissioning supervisor at Site during commissioning of AC & Ventilation System. Also, Civil contractor to rectify/ address any leakages/malfunctioning in duct work without any commercial implication to BHEL**					
(a)*	18G.	SQM	3200			0.2814803019%
(b)*	20G.	SQM	4100			0.3571547152%
(c)*	22G.	SQM	6600			0.5524474125%
(d)*	24G.	SQM	5000			0.4142623263%
(e)*	Fire damper with auto resetting, limit switches, indication lamps etc.	SQM	66			0.0588846245%
(f)*	Motorized actuator with single phase power supply for the above fire damper.	NO*	80			0.0747821529%
(g)*	Supply air grill/diffuser with VCD (Extruded Aluminium).	SQM	66			0.0392656680%
(h)*	Return air grill/diffuser without VCD (Extruded Aluminium).	SQM	80			0.0408013185%
(i)*	MS Grills/Diffusers with VCD complete with fixing frames, nuts, bolts, gaskets, washers etc.	SQM	160			0.0317298225%
(j)*	MS Grills/Diffusers without VCD complete with fixing frames, nuts, bolts, gaskets, washers etc.	SQM	20			0.0034001099%
(k)*	GI Volume control dampers for Duct.	SQM	110			0.0561018130%
(l)*	Thermal insulation with cladding of AC (supply & return air) & exposed ventilation ducting with finish as per specification	SQM	11000			0.4858349926%
						100.0000000000%

BANK GUARANTEE FOR SUPPLYING FREE ISSUE MATERIAL

(To be stamped in accordance with Stamp Act of India and only from any of BHEL's Consortium Banks)

Bank Guarantee No: ……

Date:……..

To

Bharat Heavy Electricals Limited,
Power Sector Southern Region,

BHEL Integrated Office Complex, TNEB Road, Pallikaranai,

Chennai (T.N.) - 600100

Dear Sirs,

This deed of Guarantee made this _____day of _____ two thousand_____ by **__< Name and Address of Bank>** hereinafter called the "The Guarantor" (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns) in favour of M/s Bharat Heavy Electricals Limited a Company incorporated under the Companies Act, 1956, having its registered office at BHEL House, Siri Fort, New Delhi - 110049 through its unit at Power Sector, ……. Region, ……..(Address)……., hereinafter called "The Company" (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns).

WHEREAS M/s. _____(hereinafter referred to as the Contractor) have entered into a Contract arising out of Letter of Award no._____dtd_____(hereinafter referred to as "the Contract") for the < **Name of work** > with the Company.

AND WHEREAS "the Contract" inter-alia provides that the Company may issue material having value of Rs. _____ (Rupees_____ only) to the Contractor for execution of the Contract on certain terms and conditions specified in "the contract" and subject to the Contractor furnishing a Bank Guarantee for Rs._____ (Rupees_____ only) in favour of the Company towards security of issued material.

AND WHEREAS the Company has agreed to issue the aforesaid material to the Contractor and to accept a Bank Guarantee from a Bank to cover the value of issued material.

AND WHEREAS the Contractor has approached the Guarantor and in consideration of the arrangement arrived at between the Contractor and the Guarantor, the Guarantor has agreed to give the Guarantee as hereinafter mentioned in favour of the Company.

NOW THIS DEED WITNESSES AS FOLLOWS: -

(1) In consideration of the Company having agreed to issue material having value of Rs._____ (Rupees_____only) to the Contractor for execution of the Contract, the Guarantor hereby guarantees to pay any amount that becomes payable to the Company; if the Contractor fails to utilize the

material exclusively for execution of the Contract or fails to properly account for the material issued or fails to return the balance material, or scrap as required under the Contract or fails to reimburse the value of any material not accounted for, damaged, lost, misused or otherwise recoverable under the Contract, the Guarantor hereby unconditionally and irrevocably undertakes to pay to the Company, without demur, reservation, protest or contest and merely upon first written demand, any amount claimed by the Company up to a maximum of Rs._____ (Rupees_____ only) towards such default, loss or damage suffered by the Company.

(2) The decision of the Company whether the Contractor has failed to utilize the issued material under the Contract and as to the extent of any default, shortage, loss, damage or amount recoverable from the Contractor shall be final and binding upon the Guarantor, irrespective of whether the Contractor admits or denies such default or questions the correctness of the Company's demand before any Court, Tribunal, Forum, Arbitrator or any judicial or quasi-judicial authority.

(3) The Company shall have the fullest liberty without affecting in any way the liability of the Guarantor under this Guarantee, from time to time to vary any of the terms and conditions of the Contract or extend time of performance by the Contractor or to postpone for any time and from time to time any of the powers exercisable by it against the Contractor and either enforce or forebear from enforcing any of the terms and conditions governing the Contract or securities available to the Company and the Guarantor shall not be released from its liability under these presents by any exercise by the Company of the liberty with reference to the matters aforesaid or by reasons of time being given to the Contractor or any other forbearance, act or omission on the part of the Company or any indulgence by the Company to the Contractor or of any other matter or thing whatsoever which under the law relating to sureties would, but for this provision have the effect of so releasing the Guarantor from its liability under this guarantee.

(4) The Guarantor further agrees that the Guarantee herein contained shall remain in full force and effect during the period till the Company discharges this Guarantee, subject to however, that the Company shall have no claim under this Guarantee after_____ i.e. (the date of validity of Bank Guarantee unless the date of validity of this Bank Guarantee is further extended from time to time, as the case may be) unless a notice of the claim under this Guarantee has been served on the Guarantor before the expiry of the said period in which case the same shall be enforceable against the Guarantor notwithstanding the fact that the same is enforced after the expiry of the said period.

(5) The Guarantor undertakes not to revoke this Guarantee during the period it is in force except with the previous consent of the Company in writing and agrees that any liquidation or winding up or insolvency or dissolution or any change in the constitution of the Contractor or the Guarantor, shall not discharge the Guarantor's liability hereunder.

(6) It shall not be necessary for the Company to proceed against the Contractor before proceeding against the Guarantor and the Guarantee herein contained shall be enforceable against them notwithstanding any security which the Company may have obtained or obtain from the Contractor at the time when proceedings are taken against the Guarantor hereunder be outstanding or unrealized.

BANK GUARANTEE FOR SUPPLYING FREE ISSUE MATERIAL

(To be stamped in accordance with Stamp Act of India and only from any of BHEL's Consortium Banks)

(7) Notwithstanding anything contained herein before, our liability under the Guarantee is restricted to Rs._____(Rupees_____). Our guarantee shall remain in force until _____, i.e. the date of validity of Bank Guarantee unless the date of validity of this Bank Guarantee is further extended from time to time. Unless a claim or demand under this guarantee is made against us on or before---------, we shall be discharged from our liabilities under this Guarantee thereafter.

(8) Any claim or dispute arising under the terms of this document shall only be enforced or settled in the courts at Chennai only.

(9) The Guarantor hereby declares that it has power to execute this Guarantee under its Memorandum and Articles of Association and the executant has full powers to do so on its behalf under the Power of Attorney dated_____ (To be incorporated by the Bank) granted to him by the proper authorities of the Guarantor.

IN WITNESS whereof the _____(Bank) has hereunto set and subscribed its hand the day, month and year first, above written.

(Name of the Bank)

Signed for and on behalf of the Bank
(Designation of the Authorized Person Signing the Guarantee)

(Signatory No.----------)

DATED:

SEAL

==========

Notes :

1. The BG shall be executed on non-judicial stamp papers of adequate value procured in the name of the Bank in the State where the Bank is located.

2. The BG is required to be sent by the executing Bank directly to BHEL at the address of the PS Region HQ executing the said work, under sealed cover.