

Corrigendum - 02 dated 21/09/2024 to CPC Tender No. BHEL/CPC/SGL/CHIMNEY/25/031

Name of Work: Construction of One (1) Nos. 275 m tall twin flue RCC chimney including Supply & Application of Borosilicate Glass Block Lining System with structural flue liners including all Civil, Structural Fabrication & Erection, RMC, Electrical and Elevator Works for 2X800 MW NTPC Singrauli STPP STAGE-III, Sonebhadra, Uttar Pradesh, India

Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications on queries, modification/addition on TCC clauses are mentioned as below:

Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
1	TCC	Clause 2.1	Construction of One (1) No. 275 m tall twin flue RCC chimney INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM, CONDENSATE WATER COLLECTION SYSTEM with 02 (Two) nos. structural flue liners including all Civil, Structural fabrication & Erection, Electrical, Elevator, RMC, works at 2x800 MW Singrauli STPP Stage-III, District-Sonebhadra, Uttar Pradesh, India.	Scope of bidder should be as per BOQ items	Please refer TCC Clause No 2.5.15 & 2.5.16
2	TCC	Clause 2.1	Material To Be Issued by BHEL free of cost as per BOQ Cum Rate Schedule:- 1) 1. Cement (For raft and other civil works excluding chimney shell/platforms – as mentioned in BOQ cum Rate schedule).	Please note that Cement for shell should be in contractor scope. Please clarify that PVC clause for cement (provided by bidder) calculated in which manner.	The following clause is being added to Chapter VII (Terms of Payment) of Vol IA TCC and shall be referred as Clause no. 7.3 PRICE VARIATION COMPENSATION: 7.3 A. PVC for St No 14 ii) c) & d) (wherein Cement shall be in Contractor scope): - GCC Clause No 2.17.2 (C) shall be applicable. 7.3 B. PVC for all other BOQ items except 7.3 A) : - GCC Clause No 2.17.2 (A) shall be applicable.
3	TCC	Clause 2.1	Titanium Plates.	Titanium plates will be provided by you on cut size with edge chamfering as per requirement including wastage of 5% to be delivered at contractor fabrication yard & no special cutting is envisaged at site. Please also provide Ti Strip on free of cost basis	Titanium Supply is in scope of Bidder in line with BOQ Item.
4	TCC	Clause 2.2.1 (b)	Fabrication & Erection of Structural Platforms (Internal & External), Staircase, Steel Flue Cans & flue duct inside the chimney, Mini Shell with Titanium cladding as per Specification, (including development of hard crusted / paved fabrication yard for onsite structural steel fabrication work wherever permitted by customer).	Provision of Space for Mechanical works is not defined. We request you to please clarify the distance from the chimney at which this area will be provided along with minimum area of approx. 25000 sqm in one parcel.	Space for Flue Can fabrication shall be preferably allocated near Chimney area as per site availability.
5	TCC	Clause 2.2.1 (e)	Supply and Erection of Condensate Water Collection system in conformity with the approved layout	Please provide C276 items on free of cost basis including wastage of 5%	C276 for Condensate Water Collection System is in scope of Bidder in line with BOQ Item.
6	TCC	Clause no 2.2.1.g.ii	A scale physical flow model (minimum 1:12 scale) for liquid collector system (LCS) design and includes chimney entrance section and at least nine diameters of chimney liner.	BHEL is requiring a 1:12 scale model with 9 chimney diameters. There is no technical basis for requiring a 1:12 scale factor or such a large portion of the chimney. Manufacturer have included an excerpt below from the wet stack design guide and highlighted the sections that describe these requirements in further detail: Design and optimization of liquid collectors in the absorber outlet hood, absorber outlet ducts, stack liner entrance region, and if necessary, stack liner outlet to prevent stack liquid discharge. The collectors collect liquid from duct and stack surfaces, prevent re-entrainment, and guide the liquid to locations where it can be drained out of the system. This development work is conducted on a scale model of the wet duct and stack system from the outlet of each absorber's mist eliminator to approximately four stack liner diameters above the top of the breech or inlet duct. Model scales typically range between 1:8 and 1:16. Even though the absorber outlet duct region is not a part of the chimney design, the liquid collector designs should be developed here and provided to the owner so that an integrated complete system of liquid collectors can be developed for the unit.	Tender conditions shall prevail
7	TCC	Clause 2.2.6	List of approved BSGB vendors	Please inform the list of approved suppliers of BSGB	Bidder shall take approval for Borosilicate Suppliers in line with TCC Clause No 2.2.6
8	TCC	Clause 2.7.1	Laptop / Computer and Printer for exclusive use of BHEL: The bidder will have to provide Two (01) No. of Laptops----- with one laser jet printer compatible for A4 and A3 size printing with power backup at places, as per instruction of BHEL.	The bidder will have to provide Two (01) No. of Laptops. Both are contradictory. Please confirm which is correct. We request you to please remove this clause.	Clause no. 2.7.1 of Vol IA TCC is being revised as below The bidder will have to provide Two (02) Nos. of Laptops ----- with one laser jet printer compatible for A4 and A3 size printing with power backup at places, as per instruction of BHEL.
9	TCC	Clause 2.10.2.1,	Contractor shall engage an agency expert in blasting such as, NIRM (National Institute of Rock Mechanics), CMPDIL, Central Institute of Mining and Fuel Research Dhanbad, Dept. of Mining of Govt. Institutions etc. to design detailed blasting scheme and get the same approved from Engineer before carrying out the blasting operation. All blasting shall be done as per the approved blasting scheme & initial blasting operations shall be done under the supervision & guidance of the representative of the blasting expert.	As per our past experience, controlled blasting permission is very time consuming if done by private contractor. In order to take controlled blasting permission all nearby villages/residents living in the area of plant need to no objection. The same can only be ensured by the Owner of the Plant/EPC Contractor. Request you to please ensure permission incase the same is required.	Tender conditions shall prevail

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Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications on queries, modification/addition on TCC clauses are mentioned as below:

Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
10	TCC	Clause 3.2	Power for Construction	Please provide power for construction on free of charge basis. Otherwise, please confirm the following: · Discom charges per unit · Fix monthly charges if any	Tender conditions shall prevail
11	TCC	Clause 3.2.1.a, 3.2.2.a & 3.13.1	Construction Power shall be provided on chargeable basis at one point near the site.	We request you to provide us the charges per unit of electricity to be provided by BHEL. Please indicate us the present rates per unit of electricity.	Please refer TCC Clause No 3.13.1
12	TCC	Scope Matrix: Clause 3.2.1	Electricity for construction purposes (for Site/Project works only) 3 Phase 415/440 V (Chargeable) within project premises. Construction Power may be provided at single point source on chargeable basis as and when made available at site, however contractor has to deploy DG Sets at no extra cost to BHEL to meet power requirement in case of delay in availability of single source or any kind of power interruptions during the course of the project.	We request issue of Electricity for construction purpose Free of Cost. Power connection is generally provided by NTPC for this construction. NTPC does not have permission to sell the electricity as it is not a DISCOM. We have faced this issue in other projects as well. In Talcher project, electricity is provided FOC along with water to avoid any complications. we request you to please make electricity and Construction water supply FOC.	Tender conditions shall prevail
13	TCC	Clause 3.13.1	Construction power (three phase, 415 V/ 440 V) shall be provided on chargeable basis at one point near the site at a distance of approx. 500M in a period of approx. 05 months from the date of start of work	Uninterrupted supply of Electricity (Free of cost) at Four point to be provided within 100 m of working Site, 100m of Batching Plant, 100m of fabrication yard and 50m of Labour Colony. Connections should be provided with handing over of work front to contractor.Further Please also inform the chargeable rate for power	Tender conditions shall prevail
14	TCC	3.3	Water for construction	Please provide water for construction on free of charge basis	Tender conditions shall prevail
15	TCC	Clause 3.3.1.a & 3.14.1	BHEL may provide water supply (at single point source) for construction purpose on chargeable basis.	We request you to provide us the charges per unit for water supply to be provided by BHEL. Please indicate us the present rates per unit of Water Supply.	Please refer TCC Clause No 3.14.1
16	TCC	Clause 3.14	BHEL may provide water supply (at single point source) for construction purpose on chargeable basis as and when made available by customer. However, contractor shall make alternate arrangement of construction water till the same is made available by BHEL. Contractor has to make arrangement of further distribution and metering of water at his own cost. No extra payment shall be made under this account. Rate of Page 68 of 1866 TECHNICAL CONDITIONS OF CONTRACT (TCC) Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX) TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031 water charges shall be as levied by customer (NTPC) at 2X800 MW Singrauli Stage-III Site.	Uninterrupted supply of water (Free of cost) at Three point to be provided within 100 m of working Site, 100m of Batching Plant, 100m of fabrication yard and 50m of Labour Colony. Connections should be provided with handing over of work front to contractor. Further Please also inform the chargeable rate for water	Tender conditions shall prevail
17	TCC	Clause 3.10.1	BHEL shall provide free of charge limited open space for office, storage shed and laydown area as and where made available by customer	We request you to provide us the lead / distance between the area allocated for batching plant and work location/site.	Space for Batching Plant & Flue Can fabrication shall be preferably allocated near Chimney area as per site availability.
18	TCC	Clause 3.11.1. and Drawing no. 1150-999-POC-A-019-SH-1, SH-3 & SH-4	Minimum 01 set of labour hutments as per drawing shall be completed within 3 months from the date of start of work.	Drawing no. 1150-999-POC-A-019-SH-1, SH-3 & SH-4 attached in tender document doest specify the number of labours to be accomodated in 01 set of labour hutment. Please confirm us the number of labours that can be accomodated in 01 set of labour hutment as per tender drawing.	In line with attached drawings details-typical plan for shelter for man(Drawing no. 1150-999-POC-A-019-SH-1), maximum numbers shall be 128 workers in a shed.
19	TCC	Scope Matrix: Clause 3.3.1	BHEL may provide water supply (at single point source) for construction purpose on chargeable basis as and when made available by customer. However, contractor shall make his own arrangement for water supply.	In Talcher project, construction water is provided FOC to avoid any complications. we request you to please make Construction water supply FOC.	Tender conditions shall prevail
20	TCC	Clause 3.11.1	Labour colony is to be developed by bidder for all the labourers required to be deployed for the works. All labour colony set-up is to be developed as per attached drawing of Workers Accommodation (Drg. No. 1150-999-POC-A-019-SH-1 to 1150- 999-POC-A-019-SH-4) and in compliance of statutory requirements. Minimum 01 set of labour hutments as per drawing shall be completed within 3 months from the date of start of work.	Labour colony is to be made by the contractor at his own cost. There is no separate payment to be made to the contractor. There are many residential buildings available that have all amneties such as running water, toilets & kitchens that can be used by the manpower being mobilized. These shall be better for the usage of the manpower. The Contract should not bar the contractor from providing better facilities to its manpower.We request you to please remove this clause as there is no extra payment being made and there are enough accomodations available near the plant that can be used.	The following cluase is being added to Clause no. 3.11.1 of Chapter III of Vol IC TCC In case, Bidder opts to use rental facilities(instead of constructing labour colony) available around Singrauli Plant for their labour, the bidder is allowed to choose the same provided that it is in compliance with statutory requirements and minimum facilities as per attached drawings.
21	TCC	Scope matrix SLno. 3.9.1.e	Preparation of site construction / erection schedules and other input requirements as per Form-14.	We are requesting FORM 14 online access allow to subcontractor for submission of planning and review as well as format for the same to be checked snd reviewed by BHEL, to be made inline with its online system.	Tender conditions shall prevail
22	TCC	Clause 4.0	No. of T & Ps to be deployed at site shall be decided w.r.t. monthly plan based on site requirement. Below given nos. are tentative for planning purposes by bidder.	We presume, the list of T&Ps and corresponding nos. provided are tentative and deployment of the same is not mandatory requirement. Please confirm.	Tender conditions shall prevail

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Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications on queries, modification/addition on TCC clauses are mentioned as below:

Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
23	TCC	Clause 4.0	A: Tools and Plants: Nos. of T&Ps to be deployed at site shall be decided w.r.t. monthly plan and review format (F-14) based on site requirement. Below given Nos are tentative for planning purposes by the bidder.	After award of order, the T&Ps schedule will be prepared by contractor for BHEL approval.	Tender conditions shall prevail
24	TCC	Clause 4.1.8 and BOQ, item no. 14A	<u>TCC, Ch. IV, CL 4.1.8</u> Chiller plant of adequate capacity for Temperature controlled concrete - 01 No <u>BOQ, item no. 14A</u> Extra over St. No. 14(i) for controlling of temperature of fresh concrete for raft/pilecap to less than 23 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 as directed by engineer- in-charge. - 6,850 Cum	We presume, installation of chiller plant is not mandatory. Bidder is free to make alternative arrangement for temperature control of fresh concrete. Please confirm	Bidder is free to make alternative arrangement for temperature control of fresh concrete.
25	TCC	Clause 6.0	After issue of LOA (though Fax/courier/email) the contractor shall report to the Construction Manager/Site In-Charge of BHEL at site within seven (07) days from date of LOA and submit detailed mobilization plan to start work within 15 days from date of LOA; unless instructed by BHEL to differ start of work in writing.	BHEL will inform Site hand over date & will give notice for mocontractorization of equipment & manpower. The mocontractorization will be done by contractor within 30 days of receiving NTP from BHEL.	Tender conditions shall prevail
26	TCC	Clause 6.1	START DATE / ZERO DATE: Date of Start of work shall be considered as 15 days after date of LOA or as instructed by BHEL in writing.	The Actual Date of Start of Contract Period (Zero Date) shall be date of handing over of site agreed in writing by BHEL & contractor Engineer after completion of following: - 1. B anding over of hindrance free area for site, fabrication yard & Stock Yard 2. I ssue of Form – V Issue of Approved for Construction Drawings for raft & Chimney shell.	Tender conditions shall prevail
27	TCC	Clause – 6.6	LD on Intermediate Milestone In case delay in achieving M1 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 2% of executable contract value, will be withheld. - In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 3% of executable contract value, will be withheld.	Please delete this clause as this will create negative cash flow.	Tender conditions shall prevail
28	TCC	Clause 6.10.4	Ten (10) years warranty for the Borosilicate Glass Block Lining System of the chimney flue shall be provided. Under this warranty, the bidder shall repair or replace the lining system (Both application and material) at his own cost, if the lining system should fail to protect the chimney flue from internal deterioration.	No bororosilicate manufacturer is providing 10 years Bank Guarantee for 5% of supply value.Approximately, 30% of BG Value will have to be paid to the Bank over a period of 10 years as Bank charges by the contractor. This clause should be removed from the scope of contractor. Procurement of Borosilicate materials will be done from preapproved vendor by NTPC / BHEL. Application will be done under expert supervision of such an approved vendor as well as BHEL / NTPC. This is the maximum that the contractor can ensure. This condition is increasing the cost and has not much merit in ensuring any improvement in quality by the contractor.	Tender conditions shall prevail
29	TCC	Clause 7.2	Interest Free Secured Mobilization Advance as per GCC Clause No. 2.13.1 will be payable under exceptional circumstances on certification of BHEL Construction Manager at Site. Interest Free Mobilization Advance shall be disbursed in specifically mentioned stages of major resource mobilization as specified hereunder: 1. For Mobilization of Batching Plant, Excavator & Dumper, Transit Mixers, Boom Placer/Concrete Pump- 2.0% 2. For Mobilization of other required T&Ps and resources at site to start the work - 1.5% 3. For Installation and Erection of Site Infrastructure by contractor i.e. site office, stores etc. - 1.5% Note: 1. BHEL Site-CM shall be the deciding authority for assessing the admissibility of advance payment to contractor. 2. In case contractor do not fulfil the agreed conditions of payment of 1st mobilization advance, BHEL Construction Manager will have the authority to not allow the 2nd mobilization advance to contractor.	5% advance (Interest Free) excluding GST in single installment should be release against submission of Advance Bank Guarantee for equivalent amount.	Tender conditions shall prevail
30	TCC	Clause 9.0	Cement (For raft and other civil works excluding chimney shell/platforms – as mentioned in BOQ cum Rate schedule)	We request Free issue of cement for Chimney Shell also	Tender conditions shall prevail

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Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications on queries, modification/addition on TCC clauses are mentioned as below:

Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
31	TCC	Clause 9.1 and BOQ item no. 14.ii.c & d	<u>TCC, Ch. IX, Cl. 9.1</u> Cement (For raft and other civil works excluding chimney shell/platforms – as mentioned in BOQ cum Rate schedule) <u>BOQ item no. 14.ii.c & d</u> Cement supply in contractor's scope as per TCC	BHEL is already providing Cement as Free Issue Material for Raft, grade level slab etc. and hence we request you to provide Cement as Free Issue material for the work of Chimney Shell, platform, roof slab etc also i.e. for BOQ item no. 14.ii.c & 14.ii.d.	Tender conditions shall prevail
32	TCC	Clause 9.6	Recovery of Materials (Penal Rates): If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates (excluding GST): 1 Cement (PPC). - 5,400/- per MT 2 Cement (OPC) - 6,500/- per MT 3 Reinforcement Steel / Earthing Rod - 65,000/- per MT 4 Structural Steel (Plates, Rolled Sections etc.) - 70,000/- per MT 5 Structural Steel Gratings - 1,25,000/- per MT Note: Penal Rate will be 1.05 times the actual cost to BHEL or Rate mentioned in Table 9.6.1 above, whichever is higher, shall be imposed.	Penalties should be as per market rate	Tender conditions shall prevail
33	TCC		GA Drawing of chimney including raft	To enable us to estimate the slipform and other equipment quantity, you are requested to please give us GA drawing of chimney including raft containing atleast following information: •Raft OD •Raft ID •Raft thickness •Shell OD at bottom •Shell thickness at bottom •Shell OD at top •Shell thickness at top	Annexure C: Drawings attached for reference purpose only.
34	TCC	BOQ Cum Rate Schedule, item no. 17.a.i)	Inner and outer faces of wind shield with slip form shuttering: For Mobilisation & Installation (Payment of the total certified quantity shall be made for mobilisation of slipform only after start of successful slipping as certified by Engineer in charge.) - 48,800 Sqm	We presume, after erection of slipform & start of successful slipping of slipform, the payment for complete qty indicated at BOQ item no. 17.a.i) i.e. for 48,800 sqm shall be paid to the bidder. Please confirm.	Annexure B Revised BOQ is attached with this Corrigendum
35	TCC	BOQ item So.no.17.a.ii)	For Mobilisation & Installation (Payment of the total certified quantity shall be made for mobilisation of slipform only after start of successful slipping as certified by Engineer in charge.)	We noted that UOM is in SQM, but we are requesting for LS as cost of mobilization and installation will be same even If quantity varies. Slipform set installed will be same.	Tender conditions shall prevail
36	TCC	BOQ item So.no.17.a.iii)	For Dismantling of the Slipform System (Payment of the total certified quantity shall be made only after complete dismantling of slipform as certified by Engineer in charge.)	We noted that UOM is in SQM, but we are requesting for LS as cost of mobilization and installation will be same even If quantity varies. Slipform set installed will be same percentage allocated to this item is on the higher side, should be shifted towards slipform mobilization/slipping.	Tender conditions shall prevail
37	TCC	BOQ Cum Rate Schedule, item no. B23	<u>Supply, fabrication (shop fabricated as per specification) and erection</u> of structural steel of grade E 250 in rolled/ built up section (Rolled section shall be Grade E250, Quality A/BR, mode of Deoxidation to be Semi killed/ killed and conforming.....in chimney platform, staircase, columns, beams, struts, monorails, stays, safety chains, ladders, MS gratings, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates, gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal plates, galleries etc. (Fabricated structure shall be issued by BHEL free of cost)	In the description of BOQ it is mentioned as "Supply, fabrication (shop fabricated as per specification) and erection of structural steel" and at the end of BOQ description it is mentioned that "Fabricated structure shall be issued by BHEL free of cost". We presume, only erection of structural steel is envisaged under this BOQ item no. B23. Please confirm.	Annexure B Revised BOQ is attached with this Corrigendum

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38	TCC	BOQ Cum Rate Schedule, item no. M1	Chimney vendor shall include the Condensate Collection Flow Model Study in its scope. The study shall comprise of the following as minimum: • Condensation calculations & design of condensate collection system • A scale physical flow model (minimum 1:12 scale) for liquid collector system (LCS) design and includes chimney entrance section and at least nine diameters of chimney liner.	In the BOQ description it is mentioned as "A scale physical flow model (minimum 1:12 scale) for liquid collector system (LCS) design and includes chimney entrance section and at least nine diameters of chimney liner" We understand, there is no technical basis for requiring a 1:12 scale factor or such a large portion of the chimney. Please check and confirm.	Tender conditions shall prevail
39	TCC	Drawing No. PE-DG-512-620-C001	Chimney GAD	In the GAD top and bottom diameter of Chimney Shell are not provided. We request you to provide us the Top & Bottom diameter of Chimney Shell which is required for planning of slipform.	Annexure C Drawings attached with this corrigendum for reference purpose only.
40	TCC	Drawing No. PE-DG-512-620-C001	Chimney GAD	In section 1-1 of GAD, it is mentioned as "BHEL (Trichy) Scope" for portion below EL (+) 45.00 and "Chimney Contractor Scope" for portion above EL (+) 45.00. Please clarify the same.	Annexure C Drawings attached with this corrigendum for reference purpose only.
41	TCC	Chimney GA	Chimney GA, Drg no PE-DG-512-620-C001, Sheet 01 to 01	Request provision of Flue CAN scope drawing	Annexure C Drawings attached with this corrigendum for reference purpose only.
42	TCC	Chimney GA	Chimney GA, Drg no PE-DG-512-620-C001, Sheet 01 to 01	Please provide us th shell ID and OD along with raft drawing.	Annexure C Drawings attached with this corrigendum for reference purpose only.
43	TCC	Clause no 8.2.16	Variation in Taxes & Duties: Any upward variation in GST shall be considered for reimbursement provided supply of goods and services are made within schedule date stipulated in the contract or approved extended schedule for the reason solely attributable to BHEL. However downward variation shall be subject to adjustment as per actual GST applicability. In case the Government imposes any new levy/tax on the output service/goods after price bid opening, the same shall be reimbursed by BHEL at actual. The reimbursement under this clause is restricted to the direct transaction between BHEL and its contactor only and within the contractual delivery period only. In case any new tax/levy/duty etc. becomes applicable after the date of Bidder's offer but before opening of the price Bid, the Bidder/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of price bid. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.	We request you to please provide for variation in import duty of Borosilicate materials, Titanium, C276	Tender Conditions Shall prevail
44	TCC	Chimney GA Drawing		Please Provide GA drawings of Raft Details: Outer Dia & Inner Dia, RCC Shell : Bottom Dia & Top Dia, Bottom & Top Wall Thickness, and Slope Details	Annexure C Drawings attached with this corrigendum for reference purpose only.

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45	TCC	BOQ ST No. F26	Design, supply and installation of borosilicate glass block lining system at all elevations, on ground or in erected position, with minimum 38 mm thick closed cell borosilicate glass block and two component adhesive membrane having a minimum thickness of 3 mm including preparation, blast cleaning of internal surface of steel flue liner to near white metal surface finish conforming to Sa 2 ½ finish as per ISO 8501-1 and application of suitable primer, testing, ten years full replacement guarantee, getting approval of design/drawings and installation procedure from BHEL/owner etc all complete as per specifications, drawing and as directed by engineer- in-charge including cost of skilled labour, material, tools & tackles, equipments etc all complete. Installation of borosilicate glass block lining shall be done in supervision and as directed by and satisfaction of borosilicate glass block manufacturer under controlled temperature and humidity conditions as mentioned in specification including providing all equipments required to create controlled temperature & humidity conditions inside chimney during installation, hot air blow cleaning of internal surface before application etc. all complete. a) For Design and Supply of Borosilicate glass block at site. --(WEIGHTAGES OF BOQ ITEM is 19.6975977385). b) For erection, installation and all other balance works including misc supply in the above mentioned item (St F26) except ST No F26 a).-- (WEIGHTAGES OF BOQ ITEMS is 3.7796678143)	% age allocated in borosilicate item (F26 a & b) lower side we request you to review the same as it will crete negative cash flow and impediment to execute the work.	Annexure B Revised BOQ is attached with this Corrigendum
46	TCC	BOQ ST No. F26		Please provide approved vendors list for borosilicate glass block lining system	Bidder shall take approval for Borosilicate Suppliers in line with TCC Clause No 2.2.6
47	TCC	BOQ ST No. M1		we have noted that Chimney Vendor has to include Condensate Collection Flow Model Study as a part of their scope. This is purely an activity related to design of the RCC chimney / condensate collection system and as per our understanding is carried out to analyse the effect of acid condensation on liner material for chimney operated under wet FGD and also to present viable means to minimise the effect of acid corrosion by providing suitable condensate collection system. Thus we feel that this activity should be in the scope of a specialised design agency and hence should not be a part of chimney vendor's scope. We, therefore, request you to delete this requirement / line item from bidder's scope for the subject enquiry for construction of chimney and issue revised BOQ for our consideration	Tender Condition shall prevail
48	Section D General Technical Requirement	Clause no 3.1.1.i.iii	iii) Minimum cement content/Cu.m. of finished concrete shall be as per Table 5 of IS 456-2000. However, it should be noted that minimum cement content for concrete of chimney shell of grade M30,M35,M40 shall be 400kg, 430 kg and 450 kg respectively.	Request you to please remove the capping on minimum cement content of chimney shell and let the same as per Table 5 of IS 456-2000 and approved design mix.	Tender conditions shall prevail
49	Section D General Technical, Vol IIB	Clause no 8.2.16	Steel Flues	Please provide us flue can liner plate width of 2.5 M at the time of flue can fabrication	May kindly raise specific requirement at site during execution stage. The same shall be taken care by BHEL.
50	NIT	Clause 19	BHEL shall be resorting to Reverse Auction (RA) (Extant Guidelines available on <https://www.bhel.com/guidelines-reverse-auction-2021> on "supplier registration page") for this tender. RA shall be conducted among all the techno-commercially qualified bidders.	Reverse Auction (RA) should not be applicable	Tender conditions shall prevail
51	NIT	Clause 29	Micro and Small Enterprises (MSE): This is a WORKS CONTRACT. MSE BENEFIT SHALL NOT BE APPLICABLE FOR THE PACKAGE.	MSME Should be applicable.	Tender conditions shall prevail
52	NIT	Clause 36	a. Amendments/Clarifications/Corrigenda/Errata etc. issued in respect of the tender documents by BHEL. b. Notice Inviting Tender (NIT)- Volume I c. Price Bid d. Technical Conditions of Contract (TCC)—Volume-1A e. Special Conditions of Contract (SCC) —Volume-1B f. General Conditions of Contract (GCC) —Volume-1C g. Forms and Procedures —Volume-1D	Please also include following above existing provisions: - 1. A mmendment to Contract Agreement 2. C ontract Agreement 3. A mmendment to LOA 4. E OA 5. A mmendment to LOI 6. E OI	Tender conditions shall prevail

Corrigendum-.02.dated.21/09/2024.to.CPC.Tender.No..BHEL/CPC/SGL/CHIMNEY/25/031

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Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications on queries, modification/addition on TCC clauses are mentioned as below:

Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
53	NIT	1.v	Time of submission of tender – Due date of submission is 16 th September, 2024 at 1000 Hrs	contractor proposes that time of submission should be preferably at 1500 Hrs or atleast by 1300 Hrs so that day of submission of tender is utilised.	Tender conditions shall prevail
54	SCC	Clause 6.1.7	Approach road conditions from the stores / yards to the erection/ construction site may not be equipped and ideal for smooth transportation of the material. Contractor may have to be adequately prepared to transport the materials under the above circumstances without any extra cost.	Approach road to be provided by BHEL. Specify the distance of Batching Plant, Fabrication yard and Stock Yard location from Chimney area. It should be 100-200m from working area and contractor will be allowed to Set up Batching Plant, Fabrication yard nearby working area.	Space for Batching Plant & Flue Can fabrication shall be preferably allocated near Chimney area as per site availability.
55	SCC	Clause 6.4.4.2	CEMENT WASTAGE: Allowable wastage: One and half percent (+1.5%) of theoretical consumption of cement unless	Allowable wastage will be 3%.	Tender conditions shall prevail
56	SCC	Clause 6.4.4.4	Reinforcement Steel, MS earthing rod, Foundation bolts and MS Rails Wastage: Allowable Wastage: (+3%) of the theoretical consumption shall be considered as allowable wastage.	Allowable wastage will be 5%.	Tender conditions shall prevail
57	SCC	Clause 6.4.4.6 SCC	Structural Steel Wastage: Allowable wastage: 4% (FOUR percent) of the theoretical consumption shall be considered. Wastage shall be considered as cut pieces and scrap material, measured as per actual weight basis.	Allowable wastage will be 5%.	Tender conditions shall prevail
58	SCC	Clause 9.1	Contractor will comply with HSE (Health, Safety & Environment) requirements of BHEL as per the "HSE Plan for Site Operations by Subcontractors" (Document No. HSEP: 14 Rev 02, Dated 21-12-2022) and any other document issued along with the tender. In case of any ambiguity between these documents, BHEL's Engineer shall be the deciding authority, whose decision shall be final and binding on the contractor	To be as per govt rules.	Tender conditions shall prevail
59	SCC	Clause 10.4	The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc. and other dues in the meanwhile. 60% of RA Bills complete and correct in all respects and certified by BHEL Engineer, shall be paid within 15 days of receipt. Balance payment shall be within 30 days.	Contractor's RA bill, complete & correct in all respects, certified by BHEL engineer, shall be paid within 30 days of receipt of bill with all supporting documents. 80% Payment should be released within 7 days & balance 20% payment should be released within 30 days.	Tender conditions shall prevail
60	GCC	Clause 1.9 e		Insurance Surety bond format is to be given for EMD and PBG	Annexure A Insurance Surety bond formats attached with this Corrigendum
61	GCC	Clause 1.10	Security Deposit – • 5% of the value against BOQ S. No. F26 • 5% of the value against balance items	contractor may also submit insurance surety bond. Please approve	Provision for submission of Insurance surety bond against SD is given in 1.10.3.vi. of Vol IC GCC. The clause 1.10.6 is being amended and shall be as given below 1.10.6 Validity of Security Deposit a) For SD as defined at Clause 1.10.1.i of GCC : The validity of Security towards Security Deposit shall be initially for a period of 36 Months, and the same shall be kept valid by proper renewal by the contractor for a period of 10 years (i.e. Guarantee period for Borosilicate Lining Works (As defined in BOQ St No. F26)) from completion of complete Chimney works as certified by BHEL. b) For SD as defined at Clause 1.10.1.ii of GCC: The validity of Security towards Security Deposit shall be initially up to the completion period as stipulated in the Letter of Intent/ Award + Guarantee Period + 3 months, and the same shall be kept valid by proper renewal by the contractor till the acceptance of Final Bills of the Contractor by BHEL.
62	GCC	Clause 1.10	1.10.1 Upon acceptance of Tender, the successful Tenderer should deposit the 5% of the contract value as Security Deposit, as given below, towards fulfilment of any obligations in terms of the provisions of the contract. i. 5% of the value against BOQ St No F26 (Borosilicate Lining Works) ii. 5% of the value against balance items	Both security should be 3%.	Tender conditions shall prevail
63	GCC	Clause 1.10.3 Note (ii)	In case of delay in submission of Security Deposit, enhanced security deposit which would include interest (Repo rate + 4%) for the delayed period, shall be submitted by the bidder before submission of first bill	Interest Should be [@ (Repo rate + 2%) at monthly rest plus GST] for the delayed period	Tender conditions shall prevail

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Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
64	GCC	Clause 1.10.6	The validity of Bank Guarantees towards Security Deposit shall be initially up to the completion period as stipulated in the Letter of Intent/ Award + Guarantee Period + 3 months, and the same shall be kept valid by proper renewal by the contractor till the acceptance of Final Bills of the Contractor by BHEL.	Please allow initial validity of 1 year for security deposit	Tender conditions shall prevail
65	GCC	Clause 2.7.3	In case Contractor fails to deploy the resources as per requirement informed by BHEL in writing to expedite the work, BHEL can deploy own/hired/otherwise arranged resources and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC	-----Recoveries shall be actual expenses incurred plus Nil overheads or as defined in TCC.	Tender conditions shall prevail
66	GCC	Clause 2.7.7	BHEL may permit or direct contractor to demobilize and remobilize at a future date as intimated by BHEL in case of following situations for reasons other than Force majeure conditions and not attributable to contractor: i) suspension of work(s) at a Project either by BHEL or Customer, or ii) where work comes to a complete halt or reaches a stage wherein worthwhile works cannot be executed and there is no possibility of commencement of work for a period of not less than three months.....	Compensation to be paid as per mutual agreement	Tender conditions shall prevail
67	GCC	Clause 2.7.9	If the contractor fails to maintain the required progress of work which results in delay in the completion of the work as per the contractual completion period, BHEL shall have the right to impose Liquidated Damage/Penalty at the rate of 0.5% of the contract value, per week of delay or part thereof subject to a maximum of 10% of the contract value. For this purpose, the period for which LD is applicable shall be worked out based on portion of time extension granted solely attributable to contractor at the end of the contract. Contract Value for this purpose, shall be the final executed value exclusive of ORC, Extra Works executed on Manday rate basis, Supplementary/ Additional Items and PVC.	An amount equal to 0.25% of contract value per week with maximum limit of 5% of executed contract value will be imposed as liquidated damages if delay is attributable to BIL. The maximum amount of liability of BIL for LD & other penalties will be maximum of 5% of contract value. Grace Period of 3 months will be allowed for imposition of LD.	Tender conditions shall prevail
68	GCC	Clause 2.8.3	The contractor shall comply with all applicable State and Central Laws, Statutory Rules, Regulations, Notifications, etc. such as Payment of Wages Act, Minimum Wages Act, Workmen Compensation Act, Employer's Liability Act, Industrial Disputes Act, Employers Provident Act, Employees State Insurance Scheme, Contract Labour (Regulation and Abolition) Act, 1970-----	Rates quoted in the tender are on the basis of State Minimum wages where the work is being executed.	Central Minimum wages shall be applicable. However, Bidder to confirm the same during site visit before submitting their offer.
69	GCC	Clause 2.11	EXTENSION OF TIME FOR COMPLETION: If the completion of work as detailed in the scope of work gets delayed beyond the contract period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the Contract.	EOT/Time extension shall be decided by BHEL within 1 Months of receipt of EOT application submitted by contractor.	Tender conditions shall prevail
70	GCC	Clause 2.13	Secured additional interim advance – Bank guarantee shall be 110% of the advance to be submitted	contractor may also submit insurance surety bond. Please approve	Tender conditions shall prevail.

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Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
71	GCC	Clause no 2.13.1	INTEREST FREE MOBILIZATION ADVANCE: Competent Authority of BHEL may approve proposals for payment of Interest Free Secured Mobilization Advance (limited to a maximum of 5% of the Contract Value) only in Installation Works in Power Plants under exceptional circumstances. Interest Free Mobilization Advance shall be disbursed in specifically mentioned stages of major resource mobilization in the beginning of the contract, as specified in the TCC, in three or more instalments with the value of any instalment not more than 2.5% of the Contract Value. The next instalment will be due only on completion of the activities linked to the previous instalment. Each such instalment is to be secured through BG of 100% of the instalment amount. Recovery of Interest Free Secured Advance shall be made @ 10% of Running Bill Amount. As and when the total recovered amount exceeds any of the BG value submitted against the advance, that BG shall be returned. In any case, Interest Free Advance shall be fully recovered by the time the contract reaches 50% of the original contract period either from Running Bills or by the Contractor directly depositing the amount. If the Contractor fails to deposit the total amount by the stipulated date, the recovery shall be made by encashing BGs/ Securities available with BHEL for the balance amount.	Please clarify the accounting procedure as informed in pre-bid meeting GST will be paid by BHEL in mobilization advance after contractor submits proof of deposit.	GST will not be paid with mobilisation advance. GST will be reimbursed during servicing of the contract on the basis of billing by the vendor
				We also request you to change the wording from BG to securities as surety bond may also be submitted as per Ministry of Finance notification dated 22 nd Feb 2024.	Tender conditions shall prevail.
72	GCC	Clause 2.14	2.14.1 Variation in Final Executed Contract Value The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). No compensation becomes payable in case the variation of the final executed contract value is within the limits of Minus (-) 15% of awarded contract value. Also, no compensation becomes payable in case the contract gets partially executed/ short closed/ terminated/ work withdrawn under Rights of BHEL mentioned in Clause 2.7 of GCC. In case of work terminated / short closed under clause 2.7.4 of GCC, compensation may be considered only if BHEL receives compensation from customer.....	No compensation becomes payable in case the variation of the final executed contract value is within the limits of Minus (-) 5% of awarded contract value. The Contractor will be eligible for compensation @ 25% of the difference.	Tender conditions shall prevail
73	GCC	Clause 2.14.1	Overall Contract Variation	Compensation becomes payable in case final executed contract value is below 95% of awarded contract value	Tender conditions shall prevail
74	GCC	Clause 2.14.2	Quantity variation of individual item	Compensation should be payable if quantity of individual BOQ item is reduced below 90% of the quantity in the original price schedule.	Tender conditions shall prevail
75	GCC	Clause 2.17	Price Variation compensation	PVC for Borosilicate item will be in which formula, i.e., civil or mechanical ? Further, We request you to please introduce a separate PVC formula for borosilicate supply that encompasses the dollar rate, i.e., base rate of dollar on date of submission of tender and variation to be paid in dollar. This item is imported.	The following clause is being added to Chapter VII (Terms of Payment) of Vol IA TCC and shall be referred as Clause no. 7.3 PRICE VARIATION COMPENSATION: 7.3 A. PVC for St No 14 ii) c) & d) (wherein Cement shall be in Contractor scope):- GCC Clause No 2.17.2 (C) shall be applicable. 7.3 B. PVC for all other BOQ items except 7.3 A) : - GCC Clause No 2.17.2 (A) shall be applicable.
76	GCC	Clause 2.17	Cl. 2.17.1 In order to take care of variation in cost of execution of work on either side, due to variation in the index of LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS, Price Variation Formula as described herein shall be applicable. Percentage Component (K) to be considered in the PV formula is divided in 3 groups as below, A) Cement & Steel: Free Issue (BHEL Scope) B) Cement & Steel: In Contractor Scope C) Cement in Contractor Scope, and Steel is Free Issue (BHEL Scope)	Percentage Component (K) to be considered in the PV formula is divided in 3 groups as below, A) Cement & Steel: Free Issue (BHEL Scope) B) Cement & Steel: In Contractor Scope C) Cement in Contractor Scope, and Steel is Free Issue (BHEL Scope) However, in this tender, Cement is Free issue for partly quantity of BOQ and partly quantity is in Contractor Scope. Please clarify how the Price Variation will be paid to the bidder. i.e. which percentage Component (K) shall be considered.	The following clause is being added to Chapter VII (Terms of Payment) of Vol IA TCC and shall be referred as Clause no. 7.3 PRICE VARIATION COMPENSATION: 7.3 A. PVC for St No 14 ii) c) & d) (wherein Cement shall be in Contractor scope):- GCC Clause No 2.17.2 (C) shall be applicable. 7.3 B. PVC for all other BOQ items except 7.3 A) : - GCC Clause No 2.17.2 (A) shall be applicable.

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Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
77	GCC	Clause 2.20	" Force Majeure " shall mean circumstance which is: a) beyond a party's control, b) The party could not reasonably have provided against before entering into the contract, c) Having arisen, such party could not reasonably have avoided or overcome, and d) Is not substantially attributable to the other party. Such circumstances include but not limited to.....	Rates quoted in the tender are on the basis considering no implied costs owing to any force majeure, govt imposition, lock-down situation owing to any act of God or a pandemic or endemic or Covid or a war or any other cause like local strikes that is or may be beyond the control of the contractor. If the work is stopped or site is unavailable to work or any kind of restriction is imposed or labour is idle due to gate pass issues owing to pandemic, or due to delay in approval of design & drawings or delay in issuance of free issue material and for any of the reasons cited herein, contractor will be compensated for idle of labour, staff, equipment, facilities, slipform Equipment & Financial charges of Bank Guarantee etc., and contractual completion time will be extended. Such compensation will not be linked to compensation from Principal Owner to BHEL.	Tender conditions shall prevail
78	GCC	Clause 2.21	2.21 ARBITRATION & CONCILIATION 2.21.1 ARBITRATION: Except as provided elsewhere in this Contract, in case Parties are unable to reach amicable settlement (whether by Conciliation to be conducted as provided in Clause 2.21.2 herein below or otherwise) in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract (hereinafter referred to as the 'Dispute'), then, either Party may, commence arbitration in respect of such Dispute by issuance of a notice in terms of section 21 of the Arbitration & Conciliation Act, 1996 (hereinafter referred to as the 'Notice'). The Notice shall contain the particulars of all claims to be referred to arbitration in sufficient detail and shall also indicate the monetary amount of such claim. The arbitration shall be conducted by a sole arbitrator to be appointed by the Head of the BHEL Power Sector Region issuing the Contract within 60 days of receipt of the complete Notice.....	The number of arbitrators shall be three. Each party shall appoint their Arbitrator and the two appointed Arbitrators shall thereafter appoint the Presiding arbitrator. The work being construction related, it is agreed to appoint construction domain experienced Arbitrator to enable better understanding of the issues and early disposal of the issues. The place of arbitration shall be New Delhi. New Delhi law shall apply.	Tender conditions shall prevail
79	GCC	Clause 2.22	Retention Money – 5% of contract value	Bank Guarantee against 5% retention money shall be furnished before the 1 st RA bill and in this case, BHEL will not hold any retention money from RA bills	Tender conditions shall prevail
80	GCC	Clause no 2.22.2	Refund of Retention Amount shall be as follows: 100% of Retention Amount/ BG against Retention Amount shall be released along with Final Bill after deduction all expenses/ other amounts due to BHEL under the contract/ other contracts entered into with them (contractor) by BHEL.	Please remove the word B.G and incorporate the word Securities as Surety Bond can also be an instrument for submission.	Refund of Retention Amount shall be as follows: 100% of Retention Amount/ Security against Retention Amount shall be released along with Final Bill after deduction all expenses/ other amounts due to BHEL under the contract/ other contracts entered into with them (contractor) by BHEL.
81	GCC	Clause 2.23.2	2.23.2 Final Bill Final Bill' is used for final payment on closing of Running Account for works or for single payment after completion of works. 'Final Bill' shall be submitted as per prescribed format after completion of works as per scope and upon material reconciliation, along with the following: i) No Claim Certificate' by Contractor ii) C learance certificates wherever applicable viz. Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department etc. iii) I ndemnity Bond as per prescribed format. BHEL shall settle the final bills after deducting all liabilities of Contractor to BHEL.	Final bill to be release within 45 days of submission	Tender conditions shall prevail

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Sl. No.	Reference Tender Document	Reference clause	Existing provision	Bidder's query	BHEL's Clarification
82	GCC	Clause 2.24	2.24.1 Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of Ten Years for Borosilicate Lining Works (As defined in BOQ St No. F26) and Twelve months for rest of the works from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works by itself, without prejudice to any other rights and recover the cost incurred for the same along with 5% overheads from the Security Deposit.	Upon receipt of Notice of Virtual Completion from contractor, within 15 days, BHEL shall intimate to contractor details of any defects / damages / defective workmanship if noticed in any of the materials / services as per "Scope of Work" (Called Punch List) and contractor shall rectify the punch list free of cost to the full satisfaction of BHEL. Within 15 days of intimation by contractor of completion of the punch list, BHEL will take over civil work and BHEL shall issue a completion certificate within 30 days of the above intimation. Warranty period for Workmanship / Defect liability shall be 12 months from the date of intimation of completion of Punch List by contractor or when the Principal Employer cum the Owner starts the use of structures whichever is earlier.	Tender conditions shall prevail
83	GCC	Clause 2.27	LIMITATION ON LIABILITY: Notwithstanding anything to the contrary in this Agreement or the Work Order or any other mutually agreed document between the parties, the maximum liability, for damages, of the contractor, its servants or agents, shall under no circumstances exceed an amount equal to the Price of the Agreement or the Work Order. The Supplier shall not in any case be liable for loss of profit or special, punitive, exemplary, indirect or consequential losses whatsoever. This shall not be applicable on the recoveries arising out of Risk and Cost, recoveries made by Customer from BHEL on account of Contractor, any other type of recoveries for workmanship, material, T&P etc. due from the contractor.	It should be 10% of contract value. And remove the below mentioned clause:- This shall not be applicable on the recoveries arising out of Risk and Cost, recoveries made by Customer from BHEL on account of Contractor, any other type of recoveries for workmanship, material, T&P etc. due from the contractor.	Tender conditions shall prevail.
84	Forms and Procedure	Bank Guarantee Formats	Formats of Bank Guarantee's	Format will be duly vetted by our bankers & thereafter BG, SDBG & retention BG will be submitted	Tender conditions shall prevail
85	Forms and Procedure	Bank Guarantees	Bank Guarantee extension & other action by BHEL	BHEL will give advance notice of 60 days to contractor for any action to be taken by BHEL	Tender conditions shall prevail
86	General	Contractor All risk (CAR) Policy	Contractor All risk (CAR) Policy	CAR Policy will be taken by BHEL	Please refer Clause no. 2.18 of Vol IC GCC
87	General	General	Custom Duty	We request you to include variation in custom duty to be included in the contract in the tender	Tender conditions shall prevail
88		General	Over Run Compensation (ORC) As per GCC clause 2.12) - Not Applicable.	ORC should be applicable Total Over Run Compensation shall be limited to 20% of the cumulatively executed contract value till the month	Tender conditions shall prevail

Annexure A:

Formats for

Insurance

Surety Bond

Format of Insurance Surety Bond towards Performance Security

(To be stamped in accordance with Stamp Act of India)

Insurance Surety Bond No.

Date.....

To,

*Power Sector Northern Region, 9th Floor,
BHEL SADAN, HRDI & ESI Complex,
Plot no. 25, Sector – 16A, Noida – 201301 (U.P.)*

Dear Sirs,

In consideration of the *[Employer's Name]*.....(Hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) having awarded to M/s..... *[Contractor's Name]*.....with its Registered /Head Office at (Hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors administrators, executors and assigns), a Contract by issue of Employer's Letter of Award No. dated.....and the same having been unequivocally accepted by the contractor, valued at Rs.....(in words) and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to(*) % (percent) of the said value of the Contract to the Employer amounting Rs.....(in words).

We*[Name & Address of the Insurer]*.....having its Head Office at(hereinafter referred to as the 'Insurer', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any and all amount payable by the Contractor to the extent of Rs(*).....(in words) as aforesaid at any time up to(@).....*[days/month/year]* without any condition, demur, reservation, contest, recourse or protest and/or without any reference to the Contractor. Any such demand made by the Employer on the Insurer shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Insurer undertakes not to revoke this Insurance Surety Bond during its currency and or any period extended under the contract, without prior consent of the Employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Insurer under this Insurance Surety Bond, from time to time to extend the performance of the Contract by the Contractor for the purpose of which, the Insurer shall be liable to extend the validity of the present Insurance Surety Bond without any demur, condition, protest and the Insurer shall at no point in time have an option of revoking the same, The Employer shall have the fullest liberty, without affecting this Insurance Surety Bond, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Insurer shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving the Insurer.

The Insurer also agrees and undertakes that the Employer at its option shall be entitled to enforce this Insurance Surety Bond against the Insurer as a Surety, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove our liability under this Insurance Surety Bond is restricted to Rs.....(*)..... (in words) and it shall remain in force upto and including(@)..... and shall be extended from time to time for such period, as may be desired by M/s[Contractor's Name]..... on whose behalf this Insurance Surety Bond has been given.

Dated this day of 20..... at.....

WITNESS :

1.
(Signature)	(Signature)
.....
(Name)	(Name)
.....
(Official Address)	(Designation with Insurer Stamp)
	Authorised Vide Power of
	Attorney No.....
	Date.....
2.(Signature)	
.....(Name)	
.....(Official Address)	

Notes : 1. (*) This sum shall be Five percent (05%) of the Contract Price.

(@) This date will be ninety (90) days beyond the Performance Guarantee for Workmanship period as specified in the Contract.

2. The Insurance Surety Bond shall be from an Insurer as per guidelines issued by Insurance Regulatory and Development Authority of India (IRDAI).
3. The Employer shall be the Creditor, the Contractor shall be the Principal debtor and the Insurance company/Insurer shall be the Surety in respect of the Insurance Surety Bond to be issued by the Insurer.
4. The Insurance Surety Bond should be on Non-Judicial stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the state(s) where the Insurance Surety Bond is executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Bidder/Insurer issuing the Insurance Surety Bond.

Format of Insurance Surety Bond towards EMD (Earnest Money Deposit)

(To be stamped in accordance with Stamp Act of India)

Insurance Surety Bond No.....

Date.....

To

BHARAT HEAVY ELECTRICALS LIMITED
Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sirs,

In accordance with the terms and conditions of Invitation for Bids/ Notice Inviting Tender No.....¹ (Tender Conditions), M/s. having its registered office at² (hereinafter referred to as the 'Tenderer'), is submitting its bid for the work of.....³ invited by M/s Bharat Heavy Electricals Limited (A Govt. of India Undertaking) a company incorporated under the Companies Act, 1956, having its registered office at BHEL House, Siri Fort, Asiad, New Delhi – 110049 through its Unit at Bharat Heavy Electricals Limited, Power Sector Eastern Region, DJ-9/1, Sector – II, Salt Lake, Kolkata – 700091.

The Tender Conditions provide that the Tenderer shall pay a sum of Rs as Earnest Money Deposit in the form therein mentioned. The form of payment of Earnest Money Deposit includes Insurance Surety Bond.

In lieu of the stipulations contained in the aforesaid Tender Conditions that an irrevocable and unconditional Insurance Surety Bond against Earnest Money Deposit for an amount of⁴ is required to be submitted by the Tenderer as a condition precedent for participation in the said Tender and the Tenderer having approached us for giving the said Guarantee,

we, the[*Name & Address of the Insurer*].....having our Registered Office at(hereinafter referred to as the Insurer) being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer without any demur, merely on your first demand any sum or sums of Rs. ⁴(in words Rupees.....) without any reservation, protest, and recourse and without the beneficiary needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Insurer shall be conclusive as regards the amount due and payable by the Insurer under this bond. However, our liability under this bond shall be restricted to an amount not exceeding Rs.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor/ Contractor/ Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Bond shall be a valid discharge of our liability for

payment hereunder and the Tenderer shall have no claim against us for making such payment. We Insurer further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Tender or to extend the time of submission of from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Tenderer and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Tenderer or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Tenderer or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Insurer also agrees that the Employer at its option shall be entitled to enforce this Bond against the Insurer as a principal debtor, in the first instance without proceeding against the Tenderer and notwithstanding any security or other guarantee that the Employer may have in relation to the Tenderer's liabilities.

This Bond shall be irrevocable and shall remain in force upto and including.....⁵ and shall be extended from time to time for such period as may be desired by the Employer.

This Bond shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Tenderer but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms hereof. However, unless a demand or claim under this Bond is made on us in writing on or before the ⁶ we shall be discharged from all liabilities under this Guarantee.

We, Insurer lastly undertake not to revoke this Bond during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Insurer under this Guarantee shall not exceed.....⁴.....
- b) This Bond shall be valid up to⁵
- c) Unless the Insurer is served a written claim or demand on or before⁶ all rights under this Bond shall be forfeited and the Insurer shall be relieved and discharged from all liabilities under this Bond irrespective of whether or not the original Insurance Surety Bond is returned to the Bank.

We, _____ Insurer, have power to issue this Bond under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Date.....

Place of Issue.....

¹ Details of the Invitation to Bid/ Notice Inviting Tender

² Name and Address of the Tenderer

- ³ Details of the Work
- ⁴ Bond Amount in words and Figures
- ⁵ Validity Date
- ⁶ Date of Expiry of Claim Period

Note:

1. Bidders are advised that expiry of claim period may be kept 3-6 months after validity date.
2. The Insurance Surety Bond shall be from an Insurer as per guidelines issued by Insurance Regulatory and Development Authority of India (IRDAI).
3. The Employer shall be the Creditor, the Contractor shall be the Principal debtor and the Insurance company/Insurer shall be the Surety in respect of the Insurance Surety Bond to be issued by the Insurer.
4. The Insurance Surety Bond should be on Non-Judicial Stamp paper/ e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the Insurance Surety Bond is submitted or is to be acted upon or the rate prevailing in the State where the Bond was executed, whichever is higher. The Stamp Paper/ e-stamp paper shall be purchased in the name of Vendor/ Contractor/ Supplier/ Bank issuing the guarantee.

Annexure B:

Revised BOQ

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHAGES OF BOQ ITEMS
1	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, rain/surface water dewatering (but excluding dewatering required for lowering down ground water locally & temporarily),providing safety barricading around the excavated pit, 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 including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge					
a	Depth from ground level but not exceeding 2 m	cum	8,200		₹ -	0.0974461411887%
b	Depth exceeding 2 m but not exceeding 4 m	cum	7,300		₹ -	0.1082238114772%
c	Depth exceeding 4 m but not exceeding 6 m	cum	1,750		₹ -	0.0325330331305%
d	Depth exceeding 6 m but not exceeding 8 m	cum	100		₹ -	0.0023296710885%
1A	Extra over item no. 1 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	50		₹ -	0.0021865963389%
b	Depth exceeding 2 m but not exceeding 4 m	SQM	50		₹ -	0.0027333042537%
c	Depth exceeding 4 m but not exceeding 6 m	SQM	50		₹ -	0.0034149095373%
d	Depth exceeding 6 m but not exceeding 8 m	SQM	50		₹ -	0.0042719461135%
2	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 km, spreading / levelling of disposed materials etc all complete for following depths below ground level including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge.					
a	Depth from ground level but not exceeding 2 m	cum	50		₹ -	0.0008824511699%
b	Depth exceeding 2 m but not exceeding 4 m	cum	50		₹ -	0.0010589414039%
c	Depth exceeding 4 m but not exceeding 6 m	cum	1,725		₹ -	0.0438401741209%
4	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 km, spreading / levelling of disposed materials etc all complete for following depths below ground level including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge.					
b	Depth exceeding 2 m but not exceeding 4 m	cum	100		₹ -	0.0063065843609%
c	Depth exceeding 4 m but not exceeding 6 m	cum	3,150		₹ -	0.2383147629446%
d	Depth exceeding 6 m but not exceeding 8 m	cum	3,600		₹ -	0.3270011055200%
5	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, deawtering (wherever required), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1 km, spreading / levelling of disposed materials etc all complete for following depths below ground level including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge.					
c	Depth exceeding 4 m but not exceeding 6 m	cum	100		₹ -	0.0088612216677%
d	Depth exceeding 6 m but not exceeding 8 m	cum	750		₹ -	0.0797506420290%
6	Extra over Item No. 1 to 5 for dewatering of ground water by well point method as per IS 9759.	cum	11,275		₹ -	0.8602986746216%
7	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 soil 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 including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge.					
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	11,500		₹ -	0.1542524644994%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
8	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 directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge.					
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	1,150		₹ -	0.0090657150188%
9	Extra over item No. 1 to 5 for carriage of excavated earth/selected materials for every 500 m or part thereof beyond an initial lead of 1 km.	cum	14,200		₹ -	0.0200492905802%
11	Supplying and filling sand upto any depth below grade slab, around foundations, etc. in layers not exceeding 300 mm 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 including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge.	cum	50		₹ -	0.0124602105191%
12	Supplying and laying (inside chimney in the space below the grade level slab) crushed rock range 63 mm to 45 mm in layers not exceeding 300 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete as per specification, drawing and as directed by engineer- in-charge. Payment shall be made for the measurement of the volume of the compacted fill.	cum	425		₹ -	0.1025614164703%
13	Providing and laying Nominal Mix plain cement concrete (M7.5) with graded aggregate (with maximum size of coarse aggregate not exceeding 40 mm) at all levels for all kinds of work like mass concrete, lean concrete, mudmat, filling etc. including labour, materials, equipment, handling, transporting, batching, curing, testing etc. all complete as per specifications, drawings and instructions of the Engineer. (Cement will be provided by BHEL Free of cost as per TCC)	cum	320		₹ -	0.1575704808983%
14	Providing and laying design mix cement concrete with graded aggregate (maximum size of coarse aggregate not exceeding 20 mm) for reinforced concrete work at all levels for all kinds of work, including labour, materials, equipment, handling, transporting, batching, mixing, placing, levelling, compacting, curing, testing etc. and rendering or cleaning and finishing the exposed surface with cement mortar (1:3) to give smooth and even surface, all complete as per specification, drawing and as directed by engineer- in-charge, but excluding all formwork and reinforcing steel:					
i	For all works below ground level (excluding chimney shell)					
b	Grade M-30 (foundations, etc) (Cement will be provided by BHEL Free of cost as per TCC)	cum	13,700		₹ -	7.3440174882936%
ii	For all other works					
a	Grade M-25 grade level slab, pit, trenches, drain etc. (Cement will be provided by BHEL Free of cost as per TCC)	cum	200		₹ -	0.1064589091374%
c	Grade M-35 for chimney shell, corbel, external platforms, roof slab and other shell attachments. (Cement supply in contractor's scope as per TCC)	cum	18,465		₹ -	18.8776760460823%
d	Grade M-30 for all other components of the super structure, roof slab, mini -shells, beams, columns wall etc. (Cement supply in contractor's scope as per TCC)	cum	85		₹ -	0.0885498567945%
14A	Extra over St. No. 14(i) for controlling of temperature of fresh concrete for raft/pilecap to less than 23 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 as directed by engineer- in-charge	cum	6,850		₹ -	0.3742611897349%
15	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm) with 1% antistripping compound conforming to IS 6241 in foundation, shell, pedestal etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete as per specification, drawing and as directed by engineer- in-charge.	Sqm	500		₹ -	0.0162518090458%
16	Providing and placing steel reinforcements of High yield strength deformed TMT steel bars of grade Fe-500/Fe-500D/Fe-550D conforming to IS:1786 and IS 13920 (minimum elongation shall be 14.5%) , for reinforced concrete work, at all levels, for all kinds of work, including transportation, cleaning, derusting, straightening, cutting, bending, binding in position with annealed wire and/or welding, providing concrete cover blocks, pins, separators, chairs, supports for reinforcement, etc. with all materials, labour, equipment, handling, testing, transportation to & from stores etc., preparation of bar bending schedules, all complete as per specification, drawing and as directed by engineer- in-charge.					
i	For works below ground level (excluding shell)					

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
a	High strength deformed bars (TMT steel will be provided by BHEL free of cost as per TCC)	Mt	1,450		₹ -	2.2191905552805%
ii	For works other than those under Sl. No. 16(i)					
a	Mild steel reinforcement bars (Mild steel supply in contractor's scope)	Mt	2		₹ -	0.0202580385226%
b	High strength deformed bars (TMT steel will be provided by BHEL free of cost as per TCC)	Mt	1,970		₹ -	4.2210534837680%
17	Providing and fixing formwork of approved quality for cast-in-situ, plain or reinforced concrete works of any type and section (including curved surfaces and chimney shell) for all elevations, including labour, materials, equipment, waste of forms, shoring, strutting, scaffolding, staging, tying, nailing, caulking, bolting etc. and removal of form work and staging etc. all complete as per specifications, drawing and as directed by engineer- in-charge.					
i	For works below ground level (excluding shell)	Sqm	2,500		₹ -	0.2243955664913%
ii	For works other than those under Sl. No. 17(i)					
a	Inner and outer faces of wind shield with slip form shuttering: Providing and fixing formwork using slipform (inner and outer faces) for concreting in chimney for cast in situ, reinforced concrete works of any type and section for all elevations, including labour, materials, equipment, waste of forms, scaffolding, staging, tying, nailing, caulking, bolting, maintenance, dismantling etc. all complete as per specifications, drawings and instructions of Engineer in charge. (Area of inner face and outer face shall be measured separately.) Note:- To prevent surface problem in RCC Chimney Shell, 0.47 mm thick colour coated GI sheet should be used along with Slipform shutter plate as per direction of BHEL In-Charge. Mode of Measurement:- Total formwork quantity in chimney applicable to Slipform work as per specifications & drawings shall be jointly measured and certified. Certified quantity(SQM) to be paid in line to the unit rate of 17a) i), 17a) ii) & 17a) iii). (The slipform arrangement material shall be the property of contractor)					
a i)	For Mobilisation & Installation (One Time Payment of the total certified quantity shall be made for mobilisation of slipform only after start of successful slipping as certified by Engineer in charge.)	Sqm	48,800		₹ -	3.9915953772771%
a ii)	For Dismantling of the Slipform System (One Time Payment of the total certified quantity shall be made only after complete dismantling of slipform as certified by Engineer in charge.)	Sqm	48,800		₹ -	1.0012003882963%
a iii)	Slipping/Providing formwork at inner and outer faces of wind shield with slip form shuttering with slipform arrangement. (Cost for design, mobilisation, installation & dismantling of slipform shall be paid separately in Item No 17 a i) & 17 a ii) and cost for slipping/providing & maintenance of slipform work to be paid in this item). Measurement for payment to be done progressively as per actual slipping executed at site.	Sqm	48,800		₹ -	4.9927383474173%
b	All other components of the superstructure including slabs, beams, columns, walls, enclosures, mini shells, external platforms, corbels, other shell attachments, chases/recesses in shell etc.	Sqm	150		₹ -	0.0278385105668%
18	Providing and fixing formwork in shell openings and pockets (above 0.1 sq.m surface area) including cutting, formation of shapes and all other operations required for making the required shape and size, removal of formwork, all complete as per specifications, drawing and as directed by engineer- in-charge.	Sqm	985		₹ -	0.1828062193884%
19	Providing and placing in position at all levels, building paper (kraft paper), as per IS:1397, between concrete surfaces including the cost of labour, material, etc. complete as per specifications, drawing and as directed by engineer- in-charge.	Sqm	95		₹ -	0.0002178536618%
20	Providing and installing, at all levels, bitumen impregnated fibre boards, 12 mm thick, conforming to IS:1838, as joint filler at joints in concrete, including nailing, coating of both faces with coal tar pitch/bitumen, including the cost of all labour, material and equipments etc., complete as per specifications, drawing and as directed by engineer- in-charge.	Sqm	45		₹ -	0.0036200441363%
21	Providing and filling, at all levels, bitumen sealing compound (hot applied type) conforming to IS:1834, for sealing gaps and joints in concrete, including cleaning, mixing, heating, pouring or injecting, application of primer, cost of all labour, material and equipments etc., complete as per specifications, drawing and as directed by engineer- in-charge.	Kg	600		₹ -	0.0096370727363%
22	Supplying, fabricating, erecting and installing miscellaneous steel parts to be embedded/cast in concrete (like staircase embedments, corbel face plates, etc) at all positions and levels including preparation of fabrication drawings, galvanization as per IS:4736 (The minimum weight for galvanizing shall be 610 g/sq.m and shall comply with relevant IS Codes), including the cost of all labour, materials and equipments for setting materials in concrete, grouting, welding, bolts & bolting, expansion anchors, drilling, cutting, etc. complete as per specifications, drawing and as directed by engineer- in-charge.	Mt	4		₹ -	0.0531318813545%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
B23	Transportaion from Stores/yard and erection of shop fabricated structural steel in chimney platform, staircase, columns, beams, struts, monorails, stays, safety chains, ladders, MS gratings, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates,gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs,stringers, treads, landings, decking and seal plates, galleries etc (painting if required shall be paid separately as per item no C23, D23 & E23), straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of temporary erection bolts and nuts not payable), assembly, edge preparation, preheating / post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete as per specifications, drawing and as directed by engineer- in-charge. (Fabricated structure shall be issued by BHEL free of cost)	MT	790		₹ -	2.4442532548562%
C23	Extra over ST NO. A23, B23, A24 & 27 for blast cleaning of steel structures to near white metal surface conforming to Sa 2 ½ finish of ISO 8501-1 with surface profile 40-60 Micron and 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 including the cost of all labour, material, equipments, protection of surface and cleaning, scaffolding, touch-up painting etc., complete as per specifications, drawing and as directed by engineer- in-charge. Zinc dust composition and properties shall be Type-II as perASTM D520-00. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT	218		₹ -	0.1007528622126%
D23	Extra over ST NO. A23, B23, A24 & 27 for providing and applying (by airless spray technique) 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 after an interval of minimum 24 hours (from the application of primer coat) and of approved make including the cost of all labour, material, equipments, protection and cleaning, scaffolding, touch-up painting etc. all complete as per specifications, drawing and as directed by engineer- in-charge.	MT	218		₹ -	0.0964847165221%
E23	Extra over ST NO. A23, B23, A24 & 27 for providing and applying Finish 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 ΔE) and minimum 70 micron DFT over steel sections already having intermediate coats, including the cost of all labour, material, equipments, protection and cleaning, scaffolding etc. all complete as per specifications, drawing and as directed by engineer- in-charge. This coat shall be applied after an interval of minimum 24 hours (from the application of sealer coat) and within six (6) months (from the completion of Intermediate coat). Colour and shade of the coat shall be as approved by the Employer.	MT	218		₹ -	0.0795762932099%
A24	Supplying, fabrication, erection and alignment of factory made chequered plate conforming to IS 3502 (minimum 6 mm o/p) in platforms, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, grinding, drilling, welding, edge preparation etc. all complete as per specifications, drawing and as directed by engineer- in-charge. (Chequered Plate shall be provided free of Cost by BHEL as per TCC)	MT	180		₹ -	0.9658399110213%
25	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 900 mm long for structural steel work etc all complete as per specifications, drawing and as directed by engineer- in-charge.	Quintal	160		₹ -	0.3627249879528%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
A26	Providing, fabricating and erecting at all levels, flues complete with all bends, flanges, stiffeners, all other internal and external flue attachments, support system, staying system, collars, minishell, cap, access manholes and gas sampling ports alongwith gaskets, cover plates, pipes, bends, fittings, design of condensate collection and withdrawal arrangement in line with gas-flow-model study report and any other appurtenances like seal pot etc. as required including material, equipment, transporting, lifting to all heights, setting in place, cutting, grinding, rolling, edge preparation, drilling, bending, electrodes and other consumables, alignment, erection bolts and bolting, welding, preheating and post-heating for welding, testing, etc. and other required accessories, connection design & preparation of fabrication drgs and appointment of a separte agency for review and approval of fabrication drgs in consultation with BHEL, all complete as per specifications, drawing and as directed by engineer- in-charge.					
i)	Components made of structural steel of grade E250 conforming to IS:2062 (Structure steel will be provided by BHEL free of cost as per TCC)	MT	1,235		₹ -	7.2608370938986%
vi)	Components made of titanium (Grade 2 as per ASME B265). (All material in Contractor's Scope)	MT	8		₹ -	2.5419838496497%
vii)	Components made of C276. (All material in Contractor's Scope)	KG	5,450		₹ -	3.0138648956159%
ix)	Components made of SS of grade A316L. (All material in Contractor's Scope)	KG	150		₹ -	0.0095022341975%
x)	Components made of acid resistant FRP (All material in Contractor's Scope)	KG	4,300		₹ -	0.5691810045888%
C26	Providing and applying including blast cleaning of outer surface of steel flue including stiffener to near white metal surface conforming to Sa 2 ½ finish of ISO 8501-1 with surface profile 40-60 Micron and 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 including the cost of all labour, material, equipments, protection of surface and cleaning, scaffolding, touch-up painting etc., complete as per specifications, drawing and as directed by engineer- in-charge. Zinc dust composition and properties shall be Type-II as perASTM D520-00. Primer coat shall be applied immediately after blast cleaning by airless spray technique. (Measurement for surface preparation/painting shall be done for outer surface area (based on outer diameter) of Chimney flue can in square meters.)	Sqm	14,500		₹ -	0.6908739624226%
D26	Providing and applying (by airless spray technique) on outer surface of steel flue including stiffener, an 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 after an interval of minimum 24 hours (from the application of primer coat) and of approved make including the cost of all labour, material, equipments, protection and cleaning, scaffolding, touch-up painting etc. all complete as per specifications, drawing and as directed by engineer- in-charge. (Measurement for painting shall be done for outer surface area (based on outer diameter) of Chimney flue can in square meters.)	Sqm	14,500		₹ -	0.4579609772394%
E26	Providing and applying on outer surface of steel flue including stiffener, Finish 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 ΔE) and minimum 70 micron DFT over steel sections already having intermediate coats, including the cost of all labour, material, equipments, protection and cleaning, scaffolding etc. all complete as per specifications, drawing and as directed by engineer-in-charge. This coat shall be applied after an interval of minimum 24 hours (from the application of sealer coat) and within six (6) months (from the completion of Intermediate coat). Colour and shade of the coat shall be as approved by the Employer. (Measurement for surface preparation/painting shall be done for outer surface area (based on outer diameter) of Chimney flue can in square meters.)	Sqm	14,500		₹ -	0.4579609772394%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
F26	Design, supply and installation of borosilicate glass block lining system at all elevations, on ground or in erected position, with minimum 38 mm thick closed cell borosilicate glass block and two component adhesive membrane having a minimum thickness of 3 mm including preparation, blast cleaning of internal surface of steel flue liner to near white metal surface finish conforming to Sa 2 ½ finish as per ISO 8501-1 and application of suitable primer, testing, ten years full replacement guarantee, getting approval of design/drawings and installation procedure from BHEL/owner etc all complete as per specifications, drawing and as directed by engineer- in-charge including cost of skilled labour, material, tools & tackles, equipments etc all complete. Installation of borosilicate glass block lining shall be done in supervision and as directed by and satisfaction of borosilicate glass block manufacturer under controlled temperature and humidity conditions as mentioned in specification including providing all equipments required to create controlled temperature & humidity conditions inside chimney during installation, hot air blow cleaning of internal surface before application etc. all complete.					
a	For Design and Supply of Borosilicate glass block at site.	SQM	13,400		₹ -	22.0469458286623%
b	For erection, installation and all other balance works including misc supply in the above mentioned item (St F26) except ST No F26 a)	SQM	13,400		₹ -	4.4782415899058%
27	Supply, fabrication and installation at various locations and elevations of the chimney system the following miscellaneous mild steel items complete with the cost of all labour, material and equipment, transporting, lifting, setting in place, cutting, grinding, drilling, welding, bolts and bolting, anchor fasteners and anchoring, grouting etc. complete as per specifications, drawing and as directed by engineer- in-charge:					
a	Mild steel ladders with cage, hood access hatch, louvers, bird screens, hood drain basin covers and other miscellaneous mild steel items not specifically mentioned.	Mt	6		₹ -	0.0789975934987%
b	32/40 mm nominal bore medium class tubular hand railing for stair case and internal and external platforms.	Mt	32		₹ -	0.5112346955588%
d	Extra over item 27 a and 27 b for providing minimum 610 gsm Hot dipped galvanisation on mild steel parts as per specification.	Mt	2		₹ -	0.0113583937543%
31	Supply, fabrication and installation at all levels, stainless plates (including stainless steel screws and fasteners) of grade AISI 316Land lead sheets beams and over the mild steel in the platform beam bearing, flue supports bearings, flue restraints brackets/ buffers etc. including the cost of all labour material & equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drilling, welding of stainless steel using compatible & approved stainless steel electrodes, testing & machining flat and polishing the contact surfaces of stainless steel, coating the polished surfaces with silicone grease, etc., complete as per specifications, drawing and as directed by engineer- in-charge.					
a	Stainless steel components.	kg	300		₹ -	0.0211788280777%
b	Lead Sheets.	Kg	100		₹ -	0.0036709968668%
A32	Providing, fabricating and installing expansion joint in the flue liner comprising of non-metallic material suitable for wet stack operations, shall be acid resistant to withstand acidic flue gas condensates arising out of flue gas parameters & operating conditions as specified in the specification and shall also prevent dust accumulation, shall comply EPRI guidelines including all labour, material and equipment transporting, hoisting, fixing in position, drilling, cutting, bolts and bolting, etc. along with the user handbooks (giving details of installation, dismantling and maintainance procedures for the expansion joints), testing, approval form BHEL/customer etc complete as per specifications, drawing and as directed by engineer- in-charge.	Sqm	190		₹ -	0.9570876956051%
AA32	Extra over item no.A32 for providing, fabricating and installing in the space between the expansion joint material and the liner packed and sealed by providing a bolster made up of light weight compressible material suitable for wet stack operations and acid resistant to withstand acidic flue gas condensates arising out of flue gas parameters & operating conditions as specified elsewhere in the specification. The bolster shall be confined in texturized glass fabric having a final covering of stainless steel wire mesh, shall comply EPRI guidelines including all labour, material and equipment transporting, hoisting, fixing in position, drilling, cutting, bolts and bolting, etc. along with the user handbooks (giving details of installation, dismantling and maintainance procedures for the expansion joints), testing, approval form BHEL/customer etc complete per specifications, drawing and as directed by engineer- in-charge.	Sqm	190		₹ -	0.1340977150919%
33	Supplying ,Fabricated Ready to Install, spare expansion compensators as specified in item no. A32 including the cost of all labour, material and equipment, accessories, transporting, proper packaging (for several years of storage), and delivery to site store complete in all respects per specifications, drawing and as directed by engineer- in-charge.	Sqm	38		₹ -	0.1381612822159%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
A33	Supplying ,Fabricated Ready to Install, bolster as specified in item no. AA32 including the cost of all labour, material and equipment, accessories, transporting, proper packaging (for several years of storage), and delivery to site store complete in all respects per specifications, drawing and as directed by engineer- in-charge.	Sqm	38		₹ -	0.0243814027440%
34	Providing, laying and packing, at all levels, asbestos ropes at expansion joints including the cost of all labour material, etc. complete as per drawing and specifications.					
b	12 mm (diameter) at expansion joints between lining segments.	Rm	50		₹ -	0.0013883898407%
35	Providing and installing, at all levels, resin bonded rock wool insulation slabs of density not less than 100 kg/cu.m with an installed thickness of not less than 100 mm, on the outside surface of clad steel/titanium flue liners and wherever as directed by the Engineer, in two layers (each 50 mm thick) including the cost of all labour, material and equipment, transporting, lifting to all heights, etc., inclusive of plated or galvanised accessories such as pins/studs/anchors/wire netting, speed washers, tying wires, etc. welding of pins/studs to steel surfaces or embedding of pins/studs/anchors in concrete surfaces, fixing, cutting, cutting, lapping, binding, testing, etc. complete per specifications, drawing and as directed by engineer- in-charge.	Sqm	10		₹ -	0.0014825179654%
36	Providing and packing, at all levels, loose rock wool insulation to a density not less than 100 kg/cu.m between the insulated minishells and brick liners at expanjoints between the lining segments and wherever as directed by the Engineer including the cost of all labour, material and equipment, filling, ramming, testing, etc. complete per specifications, drawing and as directed by engineer- in-charge.	Cum	1		₹ -	0.0013057453471%
40	Providing and painting, with epoxy phenolic coating system in three coats having 220 microns DFT over the external surfaces of chimney shell and wherever as required at all elevation in alternate bands of 'signal red' and 'bright white' colours including surface preparation, primer etc so as to give a good finish all complete per specifications, drawing and as directed by engineer in-charge. The epoxy phenolic coating system shall be as follows:- All concrete surfaces shall be provided with two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT to be applied over cleaned surface in multiple coats. Surface to be coated shall be absolutely dry, clean and dust free. Sealer coat shall be followed with the application of Intermediate coat of epoxy phenolic coating (solid by volume minimum 63%) of minimum 100 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique. Intermediate coat shall be followed with the application of finish 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 ΔE) and minimum 70 micron DFT. This coat shall be applied after an interval of minimum 10 hours and within six (6) months (from the completion of Intermediate coat), Colour and shade of the coat shall be as approved by the Engineer-in charge.	Sqm	24,800		₹ -	2.0536686010406%
41	Providing and painting, with epoxy phenolic coating system in three coats having 220 microns DFT over the inside surface of chimney shell above roof/ horizontal surface of shell at top/underside of concrete roof slab and wherever as required at all elevation including surface preparation, primer etc so as to give a good finish all complete per specifications, drawing and as directed by engineer- in-charge. The epoxy phenolic coating system shall be as follows:- All concrete surfaces shall be provided with two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT to be applied over cleaned surface in multiple coats. Surface to be coated shall be absolutely dry, clean and dust free. Sealer coat shall be followed with the application of Intermediate coat of epoxy phenolic coating (solid by volume minimum 63%) of minimum 100 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique. Intermediate coat shall be followed with the application of finish 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 ΔE) and minimum 70 micron DFT. This coat shall be applied after an interval of minimum 10 hours and within six (6) months (from the completion of Intermediate coat), Colour and shade of the coat shall be as approved by the Engineer-in charge.	Sqm	680		₹ -	0.0597506510541%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
43	Proving and laying over the chimney roof, a composite acid and heat protection treatment including providing of slopes for roof drainage including the cost of all labour, material and equipment, etc., complete as required for preparing the roof concrete, laying under bed of plain cement concrete screed to slopes, preparation of screed surface for painting, painting the screed surface with black bituminous paint, applying bitumenmastic in layers, laying acid resisting(A/R) mortar bed and laying 75 mm thick acid resisting(A/R) bricks with A/R mortar, curing, pointing(with phenolic based A/R cement), protection and cleaning, finishing, etc. completeper specifications, drawing and as directed by engineer- in-charge.	Sqm	415		₹ -	0.1797501615609%
44	Providing, fitting& fixing, outlet and overflow, cast iron roof drain heads (with gratings) in chimney roof including sockets, adapters, brackets, hangers, supports, etc., casting-in and jointing to 150 mm nominal bore rainwater pipes, grouting, etc. including the cost of all labour material and equipment, transporting, lifting, setting in place, painting, etc. complete per specifications, drawing and as directed by engineer- in-charge.	Each	8		₹ -	0.0103628570553%
45	Providing, fitting and fixing rainwater pipes at all levels internally from the chimney roof to ground level upto the hood drain basin including shoes, bends, junctions, flanges,hoppers, sockets, adaptors, brackets, hangers, supports, anchor fasteners, spacers, pipe sleeve through shell, silicon or vulcanised butyl seaant, foam backing material, jointing, socketing, grouting, caulking, primer and finish painting etc. complete including the cost of all labour, material and equipment, complete per specifications, drawing and as directed by engineer- in-charge.:					
a	150 mm nominal bore cast iron pipes.	Rm	32		₹ -	0.0145944527949%
b	150 mm nominal bore medium class galvanised mild steel pipes.	Rm	550		₹ -	0.1380789582875%
46	Providing and laying 50 mm thick cement concrete flooring (comprising of 12 mm thick mettalic concrete hardener topping over 38 mm thick under bed of concrete) over the grade level slab inside the chimney, including the cost of all labour, material and equipment, etc. complete as required for preparation of base, laying underbed and topping, finishing, rounding of edges, corners and junctions, curing, testing, etc. complete per specifications, drawing and as directed by engineer- in-charge. (Cement shall be issued free of cost by BHEL)	Sqm	990		₹ -	0.0815116968817%
A47	Providing and installing electrically operated steel roll-up door and grilled ventilation at chimney base (total opening size of approx. 85 square m in which rolling shutter size will be approx. 4X5 m and remaining area covered with grill for ventilation), with all hardware and mechanisms, fittings and fixtures, locking arrangements, frames, fasteners, gear handle arrangement for standby manual operation, all electrical accessories such as motors, control systems, cables, etc. including the cost of all labour, material and equipment, fixing in position, grouting primer and finish painting, testing, etc., complete per specifications, drawing and as directed by engineer- in-charge.	SQM	85		₹ -	0.0512603059641%
48	Providing and installing at any level and location, mild steel, double plate, personnel access doors, in shell openings of size 1.2m by 2.1m, complete with all fittings and fixtures, locking arrangements, frames, fasteners including the cost all labour, material and equipment, lifting to all heights, setting in place, grouting primer and finish painting, etc., complete per specifications, drawing and as directed by engineer- in-charge.	Each	1		₹ -	0.0035572136130%
A49	Supplying, fabricating and installing SS 316L grade access hatch for approx opening size of 750mmx750mm in roof slab of chimney complete with locking arrangements, frames, fittings and fixtures and all mechanisms and accessories reqd. for proper operation including all labour, painting etc. complete as per specifications, drawing and as directed by engineer-in-charge.	Each	1		₹ -	0.0321637308457%
50	Conducting load testing on girders for 1.25 times the full load, on ground , including provision of test bed and jacks, dial gauges and other supplies complete as per specifications, drawing and as directed by engineer- in-charge.	Pair	1		₹ -	0.0406814166262%
51	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures with Conbextra GP-1 or equivalent including roughening of surface, cleaning, ramming, curing etc. all complete as per specifications, drawing and as directed by engineer- in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	Cum	1		₹ -	0.0059019193162%
52	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture including roughening of surface, cleaning, ramming, curing etc. all complete as per specifications, drawing and as directed by engineer- in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	Cum	1		₹ -	0.0030036402281%
53	Supplying and erecting after approval by Engineer a rack and pinion type Elevator of min 400 kg load carrying capacity, from ground upto top of chimney with landing at various platform level, including all fixtures and accessories complete as per specifications, drawing and as directed by engineer- in-charge.	Lumpsum	1		₹ -	0.7325965596521%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
54	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof beam 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 44 mm 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 floor slab 175 mm 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 including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. all complete at all level as per specification, drawings and as directed by engineer - in - charge. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron(nominal) and minum 10 micron (nominal) SMP or super polyester paint over primer coat of minimum 5 micron (nominal) on other face. SMP and polyester paint system shall 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 & 75 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 covered by MS trough metal decking. (Supply and fixing of shear connectors shall be paid separately as per BOQ item no-55)	SQM	415		₹ -	0.1048064899067%
55	Providing and fixing shear anchor studs for fixing metal deck sheet to roof structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16mm diameter and 75mm length 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 including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. all complete at all levels per specifications, drawing and as directed by engineer- in-charge	Quintal	3		₹ -	0.0105099510759%
M1	Chimney vendor shall include the Condensate Collection Flow Model Study in its scope. The study shall comprise of the following as minimum: <ul style="list-style-type: none"> • Condensation calculations & design of condensate collection system • A scale physical flow model (minimum 1:12 scale) for liquid collector system (LCS) design and includes chimney entrance section and at least nine diameters of chimney liner. • A computational flow model for plume downwash analysis. • A physical or computational flow model for CEMS elevation flow performance. • Design of optimum choke geometry, if required. • Detail Drawings for the system. • Review & Approval of liquid collector system construction drawings. • Study includes operating conditions of the Steam Generator to produce the worst expected extremes of the liner temp. differential, moisture distribution, and if any, water droplet re-entrainment. • The effects of cold purge, normal operation, partial load, air pre heater failure and scrubbers or particulate collection equipment out of service should be considered. The scope of study shall be from mist eliminator outlet to top of the stack. Vendor shall ensure the completeness in all respects and for efficient & trouble free operation of chimney and liquid collection system for project. Vendor shall also include site inspection & supervision for 7 days to verify and evaluate LCS system performance prior to commissioning by the agency carrying out the study. The following codes and standard shall be followed for the conductance of this study: <ul style="list-style-type: none"> • Revised wet stack design guidelines, 2012 by EPRI • ACI 307 (American concrete institute code requirement for RC chimney) • EPRI report CS-2520 Entrainment in wet stack 1982 • EPRI report TR-109380 guidelines for fluid dynamic design of power plant ducts, 1998 • EPRI report GS-6984 FGD mist eliminator system design and specification guide • CICIND, ICAC, US EPA and other international and other latest codes and standards. 	Each	1		₹ -	0.3227324112979%

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHAGES OF BOQ ITEMS
E	Electrical Works					
E1	415V, 200A, 50 KA for 1 sec, 4 wire AC Distribution Board with 1No. incomer (TPN MCCB) , 12 nos. of 63A (TPN MCCB) outgoing alongwith 100KVA lighting transformer (415/433) V in Incomer, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) complete in all respects.	Nos.	1		₹ -	0.0656248578738%
E2	415V, 200A, 4 wire AC Emergency Lighting distribution board alongwith 50KVA lighting transformer (415/433 V, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) with 2 nos. of MCCB (TPN) incomers with auto changeover facility using contactors and 8 nos. 63A MCCB (TPN) outgoing complete in all respects. In case load requirement of chimney can not be met by 50 kVA lighting transformer after considering loading, 100 kVA lighting transformer shall be provided alongwith suitably rated components without any commercial implications to the purchaser.	Nos.	1		₹ -	0.1113204302903%
E3	Normal AC lighting panel outdoor type with degree of protection IP 55 with one no. 63A MCB (TPN) Incomer , 20 outgoing (16A SP MCBs)	Nos.	4		₹ -	0.0905275028156%
E4	Emergency lighting panel outdoor type with degree of protection IP 55 with One no. of 63A TPN MCB incomer and 12 outgoing (16A, SP MCBs)	Nos.	3		₹ -	0.0562738052107%
E5	Aviation lighting panel outdoor type with degree of protection IP 55 with one no. 63A MCB (TPN) Incomer , 8 outgoing 32A MCB (TPN), photodetector and timer circuit along with 63A contactor to control aviation lighting system.	Nos.	1		₹ -	0.0241626837506%
E6	Aviation obstruction lights :					
a	High intensity flashing WHITE light as per ICAO standard having intensity of 4000 to 2,00,000 candles depending upon background illuminance & flashing frequency 40-60/min with all accessories, photocell, timer etc.	Nos.	12		₹ -	0.4729425601860%
b	Temporary obstruction light located at diametrically opposite points at the top of chimney during period of construction with four fixture each .	Nos.	4		₹ -	0.0502246542115%
E7	Aviation Distribution Board (ADB) with one 32A MCB (TPN) incomer and 8 nos. SP 20A MCB. Construction is same as Lighting Panel.	Nos.	4		₹ -	0.0947430779484%
E8	Flood light with 120W LED Fixture	Nos.	8		₹ -	0.0345795103428%
E9	Well glass type luminaries with 40W LED Fixture	Nos.	70		₹ -	0.0780780687902%
E10	Well glass type luminaries with 70W LED Fixture	Nos.	150		₹ -	0.2487444533217%
E11	63Amp welding switch socket with plug & other Mounting accessories	Nos.	8		₹ -	0.0175358813921%
E12	3 pin, 1 ph, 240V, 20Amp. Industrial Power sockets complete with plug Switches etc.	Nos.	8		₹ -	0.0058448482576%
E13	Al conductor, HR PVC insulated, Armoured, PVC outer sheath, FRLS type 1100V grade conforming to IS-1554 Part I.					
a	3½ Cx95mm2 Al for connection between ACDB/ELDB/ welding sockets	Mtrs.	1,500		₹ -	0.1797853066494%
b	3½ Cx35mm2 Al for Lighting panel incoming supply	Mtrs.	1,500		₹ -	0.0913107523548%
c	4C x16mm2 Al for connection between ALP/ADB/Aviation Lights	Mtrs.	1,000		₹ -	0.0510209734408%
d	4C x 2.5mm2 Cu Control cable for Aviation lighting system	Mtrs.	500		₹ -	0.0227431198516%
E14	Cu conductor, HR-PVC insulated, PVC outer sheathed and FRLS type 1100V grade conforming to IS-1554 Part I.					
a	2.5 mm2	Mtrs.	3,000		₹ -	0.0293679749344%
b	4.0 mm2	Mtrs.	17,000		₹ -	0.2891121820890%
E15	GI pipe conduit with minimum 25 mm dia with GI junction boxes, GI pull boxes (Size 200x200x100mm of 16 SWG sheet steel for junction & pull boxes) & accessories etc. complete in all respects.	Mtrs.	4,000		₹ -	0.1187755742661%
E16	PVC coated Flexible steel conduit 25mm dia with accessories	Mtrs.	100		₹ -	0.0008503299473%
E17	Lightning protection Air terminal : Lead coated copper material of 20 mm dia with lead cover of 2mm thickness & 3.0 metre long.	Nos.	6		₹ -	0.0126733542448%
E18	50x6 Lead Coated GI Strip for coronal band on flue and top platform	Mtrs.	300		₹ -	0.0063169384546%
E18A	Electrical equipment earthing materials including down conductors 50x6 GI Strip	Mtrs.	2,000		₹ -	0.1457715204558%
E18B	Electrical equipment earthing materials including down conductors 25x3 GI Strip	Mtrs.	300		₹ -	0.0122286553321%
E19	14 SWG GI wire for equipment earthing	Mtrs.	4,000		₹ -	0.0332272280508%
E20	Test links for 50x6 down conductors enclosed in 200mm X 200mm X 100mm GI box of 16SWG sheet steel.	Nos.	6		₹ -	0.0098105767555%
E21	40mm dia MS rod for earthing of down conductor	Mtrs.	200		₹ -	0.0255910839272%
E22	Earthpit with earthing electrode including brick chamber with cover, accessories etc. complete in all respect.	Nos.	6		₹ -	0.0060528031705%
E23	Telephone socket with junction box etc. complete	Nos.	8		₹ -	0.0060997566323%
E24	Telephone handsets complete	Nos.	8		₹ -	0.0014653207570%
E25	Telephone cable of minimum 0.6 mm dia annealed high conductivity electro copper conductor, PVC insulated, twisted, PVC tape wrapped, screened, tip corded, PVC sheathed, confirming to relevant ITD (Indian Telephones department) specification					

PART-B						
Project: 2X800MW NTPC SINGRAULI STPP STAGE-III						
Revised BOQ CUM RATE SCHEDULE (% WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS W.R.T. THE TOTAL VALUE)						
Part of Corrigendum 02 to TENDER NO.: BHEL/CPC/SGL/CHIMNEY/25/031						
WORK:- CONSTRUCTION OF ONE (1) NO. 275 M TALL TWIN FLUE RCC CHIMNEY INCLUDING SUPPLY & APPLICATION OF BOROSILICATE GLASS BLOCK LINING SYSTEM WITH 02 (TWO) NOS. STRUCTURAL FLUE LINERS & INCLUDING ALL CIVIL, STRUCTURAL FABRICATION & ERECTION, RMC, ELECTRICAL, ELEVATOR, WORKS FOR 2X800 MW SINGRAULI STPP STAGE-III, SONEBHADRA, UTTAR PRADESH, INDIA.						
ST/ ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT (UOM)	QUANTITY	RATE (INR)= TOTAL VALUE * WEIGHTAGE /(QUANTITY*100) (ROUNDED OFF TO TWO PLACES AFTER DECIMAL)	AMOUNT (INR) RATE * QUANTITY	WEIGHTHAGES OF BOQ ITEMS
	a) 24 pairs	Mtrs.	400		₹ -	0.0391968337250%
	b) 2 pairs	Mtrs.	100		₹ -	0.0005804175495%
E26	GS cable trays. Cable trays shall be of ladder type constructed of minimum 2 mm thick mild steel hot dip galvanised including cover, cabling material, accessories etc.					
a	600 mm wide	Mtrs.	300		₹ -	0.0621997472010%
b	300 mm wide	Mtrs.	100		₹ -	0.0114998683259%
c	150 mm wide	Mtrs.	100		₹ -	0.0096642522323%
MS	Supplying and providing Mandatory Spares parts for Aviation Obstruction Lighting System as described below.					
MS1	Power Supply Card	Nos.	6		₹ -	0.0468957001245%
MS2	Electronic Flasher Card	Nos.	3		₹ -	0.0204899443368%
MS3	Photocell Control Unit	Set	3		₹ -	0.0108219505115%
MS4	Spare lamp/tube with holder for Aviation Obstruction Lighting fixture.	Nos.	12		₹ -	0.0692726003874%
	Total Amount (INR)				₹ -	100.0000000000000%

Annexure C:

Drawings



