



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT: KLN-C2019:TCN-02

Date: 06-12-2019

Sub	Tender Change Notice (TCN)- 02.	
Job	Package#10E: Civil, structural & architectural works for Raw water Pump House, Desilting Chamber, RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.	
Ref	1.0	Tender no PSER:SITE:KLN-C2019:19.
	2.0	BHEL's NIT, vide reference no PSER:SITE:KLN-C2019:19 Date: 28-11-2019.
	3.0	BHEL's TCN-01, vide reference no PSER:SITE:KLN-C2019:19 Date: 05-12-2019
	4.0	Other References, if any.

With reference to above, following points/documents, relevant to tender, may please be noted and complied with while submitting the offer.

- 1) Revised Volume-IF-TCC-CML-Rev-01 is attached herewith, superseding Volume-IF-TCC-CML-Rev-00 issued earlier along with NIT. However, bidder shall go through entire volume before submitting their bid.
- 2) Revised BOQ cum Price Schedule, **VOLUME-III-PRICE SCHEDULE, REV-01** is attached superseding **VOLUME-III-PRICE SCHEDULE, REV-00** issued earlier along with NIT. **Bidders shall quote as per this revised Volume-III, Rev-01 only.** Bidders are also requested to submit a declaration in techno-commercial offer that they have submitted their price bid as per **REVISED Price Schedule** format.
- 3) Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
- 4) All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

Dy. Manager (SCT)

Encl: As Above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

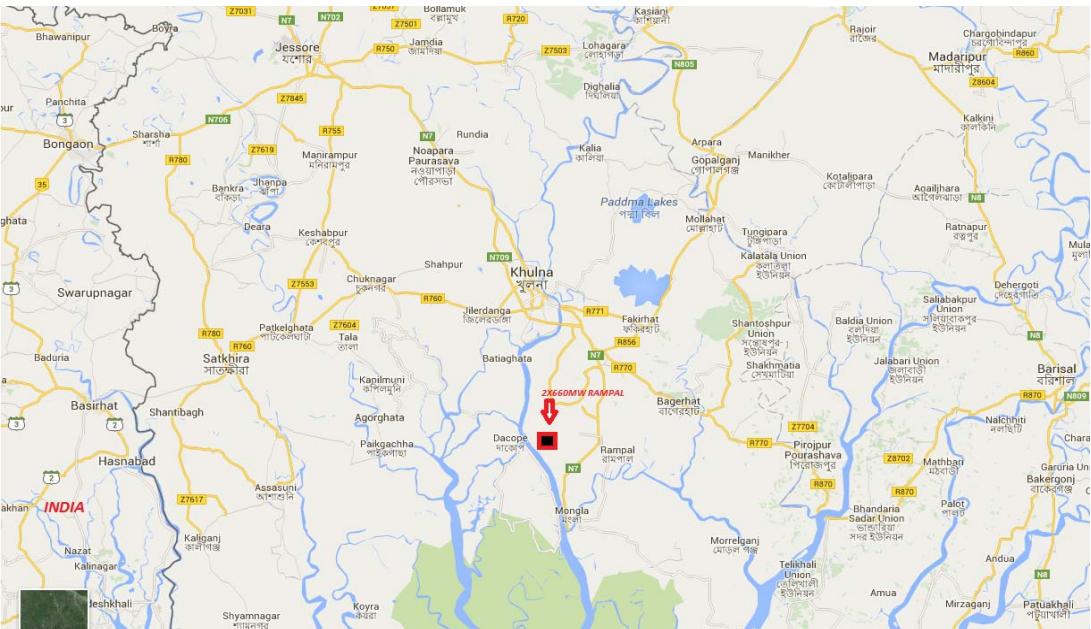
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TENDER NO – PSER:SITE:KLN-C2019:19		
VOLUME-IF-CML- REV-01	TECHNICAL CONDITIONS OF CONTRACT (TCC)	PAGE 1 OF 39

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1.0 PROJECT SYNOPSIS AND GENERAL INFORMATION	
1.1	<p>The 2 x 660 MW MAITREE SUPER THERMAL POWER PROJECT is located in Moithara Village, Rampal Upazila, Bagerhat District, Bangladesh.</p> <p>The Bidder shall acquaint himself by a visit to the site, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually binding on the Owner. All relevant site data / information as may be necessary shall have to be obtained / collected by the Bidder.</p>  <p>LOCATION MAP:2X660MW MAITREE RAMPAL PROJECT</p>



LOCATION MAP: 2X660MW MAITREE RAMPAL PROJECT

1.2	APPROACH TO SITE The nearest town Khulna is at a distance of 23 km from project site. The site is Connected by road from Mangla- Khulna Highway. Nearest Domestic airport is Jessor, Bangladesh at a distance of about 93 KM and international airport is Dhaka at a distance of 263 KM, Bangladesh
1.3	Owner: BIFPCL (BANGLADESH-INDIA FRIENDSHIP POWER COMPANY (PVT.) LIMITED)
2.0	SCOPE OF THE CONTRACT 2.1 The scope of work is indicative but not limited to the given below. SCOPE OF WORK CIVIL & ARCHITECTURAL WORKS FOR <ul style="list-style-type: none"> • RAW WATER PUMP HOUSE, • DESILTING CHAMBER, • RW ELECT ANNEXE & RW CHLORINATION • ANY OTHER BUILDING/MISC.WORK FOR 2X660 MW MAITREE RAMPAL PROJECT, BANGLADESH. SPECIAL NOTE: PILE INSTALLATION HAS BEEN ALREADY COMPLETED IN DESILTING CHAMBER, RAW WATER PUMP HOUSE, RAW WATER ELECTRICAL ANNEXE BUILDING BY OTHER AGENCY. PILE HEAD BREAKING SHALL BE CARRIED OUT BY OTHER AGENCY AFTER EXCAVATION AND PCC BY BIDDER. PILE HEAD BREAKING IS NOT INCLUDED IN THE SCOPE OF BIDDER. HOWEVER, IF PILE HEAD BREAKING IS REQUIRED TO BE EXECUTED SAME SHALL BE PAID AS PER RELEVANT ITEM OF BOQ.

THE RAW WATER PUMP HOUSE WORK HAS BEEN ALREADY EXCAVATED PARTIALLY BY PREVIOUS VENDOR WITH SHEET PILE INSTALLED. THE ACCUMULATED SILT / MUD REQUIRED TO BE REMOVED IS INCLUDED IN THE SCOPE AND SHALL BE PAID AS PER RELEVANT ITEM OF BOQ.

2.2	The works to be performed under this contract consist of providing all labour, supervision, material, scaffolding, construction equipments, tools and plants, temporary works, supplies including POL, transportation and all incidental items not shown or specified but reasonably implied or necessary for the proper completion of work in all respects. Testing of all materials, concrete, earthwork other allied works, preparation of bar bending schedules on the basis of construction drawings, preparation of fabrication drawings etc. are included on the rates of items of work. Works shall only be carried out with approved structural fabrication drawings.
2.3	The area of work shall be cleared of all vegetation, rubbish and other objectionable matter and materials remove shall be burnt or otherwise disposed of as directed by the Engineer-in-Charge. No separate payment for these operations shall be made. The cost of all these operations shall be deemed to have been included in the unit rates rendered for the different items under bill of quantities.
2.4	All the works areas shall be adequately flood lighted to the satisfaction of the Engineer-in-Charge when the work is in progress during the night shifts.
2.5	The unit rates shall include all material equipment, fixtures, labour construction plant, temporary works and everything whether of permanent or temporary nature necessary for the completion of job in all respects.
2.6	The unit rates for various items of B.O.Q shall include all the stipulations mentioned in Section C and technical specifications under Section D and nothing extra over B.O.Q rates shall be payable.
2.7	Drawings showing enough details for the construction as per the specification shall be furnished to the contractor in a phased manner as far as possible.
2.8	The bidder should fully apprise himself of the prevailing conditions at the proposed site, climatic conditions including monsoon pattern, local conditions, soil strata and site specific parameters and shall include for all such conditions and contingent measures in the bid, including those which may have not been specifically brought out in the specifications.
3.0	SITE VISIT
3.1	Contractor should visit site and acquire full knowledge & information about site conditions prevailing at site and in and around the plant premises together with all the statutory, obligatory, mandatory requirements of various authorities before submission of the bid. In line with the above, site visit confirmation will be required to be submitted by the bidder with the technical bid.
3.1.1	OPEN SPACE FOR OFFICE & STORAGE Open spaces for material storage yard & construction of temporary site office may be allocated as made available by the customer / BHEL free / hire charges. Contractor has to make his own arrangements for labour colony including Electricity and water for the labour colony.
3.1.2	Construction of necessary stores and storage of materials shall be in contractor's scope. BHEL shall provide available space as received from customer on mutually agreed basis. Security of stores & work place shall be in Contractor's scope.
3.1.3	REMOVAL OF TEMPORARY FACILITIES When the Work is completed all such temporary structures and facilities shall be removed from the Site and the area shall be restored to its original condition
3.2	WATER
3.2.1	BHEL will provide construction water at one point at mutually agreed point or within 500 m from work premises, free of cost to the contractor .

<p>Bidder to note that no ground water is allowed for construction purpose by the project authority.</p> <p>3.2.2 Further necessary network for construction water system shall be done by the bidder at his own cost.</p> <p>3.2.3 Contractor should arrange on their own drinking water in their labour colony.</p> <p>3.2.4 BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of water supply and the contractor shall claim no compensation for delay in work for such interruption. Contractor may make standby arrangement for water for which no separate payment shall be made by BHEL.</p> <p>3.2.5 Contractor will have to arrange for storage of water to meet the day-to-day requirement.</p> <p>3.2.6 The availability of water (construction as well as drinking) in Maitree project may be limited. Contractor shall ensure that no water is wasted. In this regard the contractor shall take all necessary measure towards preservation of water.</p>		
3.3	ELECTRICITY	
3.3.1	<p>CONSTRUCTION POWER & GENERAL ILLUMINATION NETWORK:-</p> <p>BHEL Shall Provide Construction Power free of charge at 415V level at one point (within 500 M from his workplace / batching plant), bidder has to make his own distribution arrangement to draw electricity.</p> <p>The bidder will have to procure & install adequate area illumination system during construction right from start of his work. This system will include temporary pole lighting, portable lighting towers with sufficient DG back-up for area lighting at different working areas for execution of the work & safety of workmen within the quoted rate.</p> <p>The illumination should be such that minimum illumination requirement as specified in specification or any-where for general illumination is maintained.</p> <p>GENERAL:-</p> <p>If any other voltage level (other than normally available) is required, the same shall be arranged by the contractor from power supply as above. Contractor will have to provide at his own cost necessary calibrated energy meters (tamper proof, suitably housed in a weather proof box with lock & key arrangement) at point of power supply along with calibration certificate from authorized / accredited agency for working out the power consumption. In case of recalibration required for any reason the necessary charges including replacement by calibrated meters is to be borne by the contractor. Supply of electricity shall be governed by Electricity Act and Installation Rules and other Rules and Regulation as applicable. The contractor shall ensure usage of electricity in an efficient manner and the same may be audited by BHEL time to time. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.</p>	
3.3.2	The bidder shall have to provide earth leakage circuit breaker at each point wherever human operated electrical drives / T&Ps are deployed.	
3.3.3	The power supply will be from the available source of customer. BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of power supply / variation in voltage level and no compensation for delay in work can be claimed by the contractor due to such non-supply on the grounds of idle labour, machinery or any other grounds.	
3.3.4	Bidder will have to arrange sufficient illumination at their own work areas.	
3.3.5	The contractor should ensure that the work in critical areas is not held up in the event of power breakdown. In the event of breakdown in the electric supply, if the progress of work is hampered, it	

	will be the responsibility of the contractor to step up the progress of work after restoration of electric supply so that overall progress of work is not affected.
3.3.6	The contractor shall have to make arrangement at their own cost for illumination that will be required in the working area for execution of the work & safety of workmen.
3.3.7	The contractor shall have to make arrangement at their own cost for illumination etc. in labor colony. However there may be provision of Chargeable Power for labor colony for which contractor has to install meters and necessary accessories
4.0	TOOLS & PLANTS
4.1	All the tools and plants required for execution of the above work are in contractor's scope.
5.0	MATERIAL HANDLING (BHEL ISSUED MATERIAL)
5.1.1	Reinforcement (TMT bar) earthing Strip/Bar, structural steel (MS plate/ ISMB/ channel/ angle/chequered plate/ stainless steel plate/liner) only will be issued free of cost by BHEL for use in the work covered in this contract. All other materials required for proper completion of job shall be provided by contractor and quoted rates shall be inclusive of this. Please note that BHEL will only issue the above free materials if has written in the description of the BOQ.
5.1.2	Consignment steel will be directly issued to the contractor as received by BHEL, on weighment basis from its supplier, as per delivery challan of supplier.
5.1.3	Handling of steel of total project including its unloading will be in vendor's scope for which no separate payment will be given by BHEL.
5.1.4	It would be the responsibility of the contractor to keep in constant contact with BHEL/ site to find out the delivery status, arrival of the consignments and arrange for escort to accompany the truck/ trailer for transportation of above materials by BHEL'S supplier, as necessary. The lorry, truck way bill for the consignment as shall be received by BHEL would be handed over to the contractor immediately for unloading of materials including all arrangement for necessary gate passes etc. All arrangement for necessary gate passes etc shall be the responsibility of contractor.
5.1.5	Payment of all demurrgages that may result due to contractor's fault/ delay would be the responsibility of the contractor. If BHEL have to make payment of demurrage together with freight, the amount so paid as demurrgages for the reasons stated above, shall be recovered from the bills of the contractor. The decision of BHEL's engineer in this regard will be final and binding on the contractor. However the contractor has to clear all such charges, if any in this regard and complete the job without waiting for BHEL's decision.
5.1.6	It would be the responsibility of the contractor to sign on the delivery book acknowledgement slip of supplier/ transport authorities etc.
5.1.7	Consignments coming on Sundays and holidays are also required to be handled/ unloaded by the contractor. Since the offices and stores will probably remain closed on such days, it will be the responsibility of the contractor to contact BHEL engineers at their residence and obtain instructions.
5.1.8	Since the consignments are expected to arrive during any time of the day or night, contractor shall have, his workmen round the clock at site as well as other places as required to unload the materials immediately on arrival.
5.1.9	Unloading of materials at the storage yard or at places designated by BHEL, stacking & restacking, shifting & reshifting, using contractor's own cranes, trailers and other equipments with the valid road permit for their operation, unloading and stacking etc shall be responsibility of the contractor under this contract. All materials/equipments shall be stacked, stored above ground level by use of concrete or wooden sleepers No materials shall remain on ground at any time. All concrete sleepers required for stacking the materials shall be arranged by contractor (successful bidder of this package). All other material handling equipments like winches, d-shackles, slings of various sizes, max puller, pulley blocks, jacks, trucks, tailors etc required for such material handling of steel etc. shall be arranged by contractor within quoted/accepted rates.

5.1.10	It will be the responsibility of the contractor to submit computerized account of all such consignments of materials received by them, daily to BHEL.	
5.1.11	BHEL reserve the right to recover from the contractor any loss arising out of damage/ theft or any other causes of the materials issued to him at any point.	
5.1.12	<p>Open land (very limited space) for storage shall be provided by BHEL on free of cost basis as per availability.</p> <p>You shall maintain one centralized fenced store cum bar bending yard (Area Approx. 50mx50m). Hard surfacing of this yard and all round drain shall be carried out by you at your own cost within the accepted rate.</p> <p>Batching plant area shall be provided within plant premises and you shall make use of the area for installation and operation of the Batching Plant at your own cost.</p> <p>You shall make complete arrangement of necessary security personnel, to safeguard all such materials in your custody. Materials issued will be used only for construction of permanent work. You shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering.</p> <p>Barbed wire fencing of the steel storage yard, batching plant area, reinforcement bending yard area etc. are to be done by the contractor at his own cost. Contractor shall also remove grass, bushes, trees etc. wherever required off the land provided to him and shall make proper continuous upkeep of the open yard/ land by removing grass, bushes trees etc and same is included under the scope of his work & no extra payment shall be made to the contractor in this regard.</p>	
5.1.13	The contractor shall construct waterproof cement store (capacity up to 300 MT) for storing and stacking of cement, CGI / asbestos roofing (slope) with brick masonry wall, PCC flooring or container. Materials required for the same shall be provided by contractor at his own cost. Cement has to be kept over wooden raised platform. Stacking of cement is to be done as per BS codes with proper illumination and locking arrangements.	
5.1.14	The contractor shall in no case be entitled for any compensation or damages on account of any delay in supply or non-supply thereof for all or any such material.	
5.1.15	Excessive rusting of steel must be avoided. In case, due to any cause attributable to the contractor, such clotting of and/ or rusting of steel occur rendering the same unusable, then such quantity of steel shall be recovered from the interim payment at the penal rate specified in the tender.	
5.1.16	No material shall be issued to the contractor except as those indicated above, i.e. steel unless otherwise expressly provided for in the contract. Contractor will have to make his own arrangement at his own cost for procurement of any other material as required for the works and of such quality as acceptable to BHEL.	
5.1.17	The contractor shall maintain proper store account for all the BHEL issued materials and shall give three copies of monthly computerised reconciliation statement of such account to the BHEL.	
5.1.18	Contractor shall carry out in complete association with BHEL, material management functions and execution like day to day update of materials, issued to contractor, accounting for surplus/ scrap material returned etc. These functions shall also be carried out through computerised system utilizing suitable software. Contractor shall provide experienced software personnel to associate on dedicated basis for efficient discharge of the same.	
5.1.19	The contractor shall solely be responsible for the safety & quality of material after it is handed over and issued to contractor by BHEL.	
5.1.20	BHEL issued materials shall not under any circumstances be taken out of the project site unless otherwise permitted by BHEL.	
5.1.21	All the necessary lifting tackles, cranes, hydra, tools & plants including tractors, trailers, trucks, pulley blocks, jacks, winches, wire ropes etc, of suitable capacities and other equipments incidental to carry	

	out this work shall have to be arranged by the contractor at his cost. BHEL engineer reserves the right to inspect lifting tackles and equipment before allowing their use. Such approval however shall not relieve the responsibility of the contractor to ensure safe handling of equipment taking the precautions to avoid any accident and damage to other equipment and personnel.
5.1.22	No separate rate will be applicable for the above job. The contractor will quote the rate for the items inclusive of all charges for the above job.
5.1.23	Bidder's scope of handling of steel under the scope of this tender includes stacking/ storing of materials over concrete sleepers Bidder scope shall include provision of concrete sleepers for this purpose and no separate payment against the same will be made by BHEL. After completion of the job bidder shall take back the sleepers Bidder's quoted rate/ price shall be in consideration to this.
5.2	DELETED
5.3	<p>ISSUE OF STEEL (Steel shall be provided against respective items of the BOQ where mentioned that Steel shall be supplied by BHEL as free of cost)</p> <p>5.3.1 The steel shall be issued to the contractor free of cost on the following basis.</p> <p>5.3.1.1 Structural steel (MS plate, angle, channel, ISMB, Stainless steel plate/Liner, chequered plate and EOT crane rails) – Weighment basis (unit – MT).</p> <p>5.3.1.2 Reinforcement steel(TMT) and earthing rod (MS round) – Weighment basis (unit – MT).</p> <p>5.3.2 All the steel (structural steel, reinforcement, earthing strip/bar) issued by BHEL shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs. The measurement for payment as well as for accounting shall be based on the sectional weights</p> <p>5.3.3 In case any such sectional weights are not available in the above documents, the manufacturer recommendation shall be binding.</p> <p>5.3.4 The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores no claims for extra payment because of issue of non-standard length will be entertained.</p> <p>5.3.5 In case MS flats as required in the fabrication of structures are not available, you shall cut such width out of the available MS plates to make flats at no extra cost till such material is available and procured by BHEL.</p> <p>5.3.3 The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by contractor from BHEL stores.</p>
5.4	ISSUE OF READY MIX DESIGN(RMC)
5.4.1	The RMC shall be issued to the contractor free of cost as per item of the Price Schedule.
5.5	<p>Quarterly requirement of steel must be positively submitted by the contractor at the last month of the previous quarter,</p> <p>In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.</p>
5.6	Bidders to ensure that no lamination materials are taken over by them from BHEL. Fabrication wastage, if any due to above, shall not be compensated by BHEL
5.7	Bidder to note that steel required for his enabling job like store/ site office etc. shall be arranged at his own cost.
5.8	RETURN OF MATERIALS
5.8.1	RETURN OF STEEL INCLUDING SCRAP
5.8.1.1	All surplus steel and all wastage materials will be taken back on weighment basis.

5.8.1.2 Surplus, unused and un-tampered steel shall be sorted section-wise and returned separately for a place directed by BHEL/ engineer within the project area. Return of such materials will not be entitled to any handling and incidental charges.

5.8.1.3 All wastage/ scrap (including wastage, unusable scrap) shall be returned to the stores on weighment basis and a receipt obtained for material accounting purposes. Return of such material will not be entitled to any additional cost due to handling and transportation and incidental charge.

5.8.1.4 Scrap for reinforcement steel and structural steel shall be returned separately

5.9 RMC & STEEL CONSUMPTION AND WASTAGE

5.9.1 READY MIX CONCRETE (RMC) WASTAGE

5.9.1.1 Allowable wastage – One and half (+1.5%) of theoretical consumption of RMC unless specified otherwise in the technical specification.

5.9.1.2 For any material issued by BHEL to the contractor free of cost, and which is not accounted for by the contractor to BHEL, then recovery for such material shall be affected at penal rates.

S L	RMC consumption	Basis of issue & penal recovery
C- 1	Theoretical consumption (without considering any wastage or loss).	Free
C- 2	Actual consumption being Limited to plus one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage.	Free
C- 3	Actual consumption beyond one and half percent (+1.5%) of above (C-1).	Penal rate

5.9.5 REINFORCEMENT STEEL CONSUMPTION

5.9.5.1 The theoretical consumption of various diameters of reinforcement and earthing MS round shall be based on approved construction drawing and bar bending schedule. Weight shall be calculated considering the sectional weights as per Indian standards. No extra cost shall be payable to the contractor for any deviation in weights for the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

5.9.5.2 Actual consumption = Issue – Surplus.

5.9.5.3 Surplus = Un-tampered and unused quantity of steel returned by the contractor to BHEL store along-with relevant documents. However, cutpieces of length greater than or equal to 5.0 m in good condition as per judgement of the engineer will also be treated as surplus steel. If contractor will be deposited/handed over to BHEL more than wastage quantity as specified in clause No. 5.10.1 & 5.12.1 then same quantity will not be taken in Reconciliation statement and bidder will not be received of any financial benefit.

5.9.5.4 Wastage = Actual consumption – Theoretical consumption.

5.10 REINFORCEMENT STEEL & CLADDING SHHET WASTAGE

5.10.1 Allowable wastage – Three Percent (+3%) of the theoretical consumption shall be considered as allowable wastage.

5.10.2 Wastage and scrap shall be as per actual weighment basis.

S L	Reinforcement steel	Basis of issue & penal recovery
R- 1	Theoretical consumption (without considering wastage and scrap or loss for RS, Cladding sheet lapping will be consider for reconciliation)	Free
R- 2	Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R-1) towards allowable wastage.	Free

	R-3	Wastage beyond three percent (+3%) of the theoretical consumption above (R-1).	Penal rate
5.11	STRUCTURAL STEEL CONSUMPTION		
5.11.1	The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard as mentioned in relevant clause. No extra shall be payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.		
5.11.2	Actual consumption = Issue – Surplus.		
5.11.3	Surplus = Untempered, unused, uncut quantity of steel returned by the contractor to BHEL store.		
5.11.4	Wastage = Actual consumption – Theoretical consumption.		
5.12	STRUCTURAL STEEL WASTAGE (Except Fabricated Structural Steel as supplied by BHEL as free of cost, NO wastage will be permitted for fabricated structural steel)		
5.12.1	Allowable wastage – 4 % (four percent) of the theoretical consumption shall be considered. Wastage is further classified as cut pieces and scrap measured as per actual weightment basis. Invisible wastage (loss of materials due to gas cutting, straightening of edges etc) shall be limited to 0.5 % (zero point five percent) of theoretical consumption and shall be considered for reconciliation purposes only. But this invisible wastage shall be considered to be included in allowable wastage (i.e. four percent).		
	SI no	Structural steel materials	Basis of issue & penal recovery
	S-1	Theoretical consumption (without considering any wastage, scrap or loss) as per specification & drg.	Free
	S-2	Wastage limited to plus four percent (+4%) of the aforesaid theoretical consumption (S-1) towards allowable wastage.	Free
	S-3	Wastage beyond four percent (4%) of the aforesaid theoretical consumption (S-1).	Penal rate
5.13	COPPER STRIP/BAR/CONDUCTOR CONSUMPTION		
5.13.1	The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard as mentioned in relevant clause. No extra shall be payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.		
5.12.2	Actual consumption = Issue – Surplus.		
5.12.3	Surplus = Un-tempered, unused, uncut quantity of steel returned by the contractor to BHEL store.		
5.12.4	Wastage = Actual consumption – Theoretical consumption.		
5.13	COPPER STRIP/BAR/CONDUCTOR - WASTAGE		
5.13.1	Allowable wastage – 0.5% (Half percent) of the theoretical consumption shall be considered.		
5.14	All wastage reinforcement, MS round/Copper Strip/Copper bar, structural steel shall be returned to BHEL.		
5.15	RECONCILIATION OF BHEL ISSUED MATERIALS		
5.15.1	The contractor shall submit a reconciliation statement of RMC and steel issued to him once in two months. The same may be submitted along with each RA bill.		
5.15.2	At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material are available with contractor's custody at site.		

5.15.3	If it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.				
5.15.4	The approved drawings/ bar bending schedules are to be considered for the purpose of reconciliation of materials.				
5.16.0	RECOVERY OF MATERIAL				
5.16.1	If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA bill at the penal rate stipulated below.				
5.16.2	PENAL RATE OF MATERIALS				
	Item	Penal rate (USD)			
	Reinforcement steel etc.	1000/- per MT.			
	Structural steel/GI Flat	1560/- per MT.			
	Tinned Copper Strip/Bar/Conductor/SS Plate	9000/- per MT.			
	Ready Mix Concrete (RMC)	105% of BHEL purchase cost.			
6.0	INSPECTION, TESTING AND INSPECTION CERTIFICATES				
6.1	The engineer, his duly authorized representative and / or an outside inspection agency acting on behalf of BHEL / owner shall have access at all reasonable times to inspect & examine the materials & workmanship of the works during its manufacture and if part of the works is being manufactured or assembled on other premises or works, the vendor shall obtain for the engineer and for their duly authorized representative permission to inspect as if the works were manufactured or assembled on vendor's own premises or works. Necessary arrangement for carrying out inspection including supply of labour, IMTEs, area illumination and scaffolding, if required will be vendor's responsibility and same has to be carried out within the quoted price.				
6.2	To facilitate advance planning of inspection in addition to giving inspection notice the vendor shall furnish quarterly inspection program indicating schedule dates of inspection at customer hold point and final inspection stages. Updated quarterly inspection plans will be made for each 3 consecutive months and shall be furnished before beginning of each calendar month.				
6.3	Before any plant / equipment leaves the place of manufacture, BHEL shall be given the option of witnessing inspections & tests for compliance with specifications & related standards. The vendor shall give the engineer/ inspector 15 days written notice of any material being ready for testing. Such test shall be to the vendor's account except for the expenses of the inspector. The engineer / inspector, unless the inspection is waived will attend such tests within 15 days of the date on which the equipment is notified as being ready for test / inspection, failing which the vendor may proceed with test which shall be deemed to have been made in the inspector's presence and he shall forthwith forward to the Inspector duly certified copies of test reports.				
6.4	The engineer or inspector shall within 15 days from the date of inspection as defined herein give notice to the vendor of any objection w.r.t. drawing / equipment / workmanship which in his opinion not in accordance with the specification / contract. The vendor shall either make modification as may be necessary to meet the said objection or explain to the engineer/ inspector giving reasons that no modifications are necessary to comply with the contract.				
6.5	When the factory tests have been completed at the vendor's or sub-vendor's works, the engineer or inspector shall issue a certificate to this effect within reasonable time after completion of tests but if the tests are not witnessed by the engineer or Inspector the certificate shall be issued within 15 days of the receipt of vendor's test certificate by the engineer inspector. Completion of these tests or the issue of the certificates shall not bind BHEL to accept the equipment should it on further tests after erection be found not to comply with the contract.				
6.6	In all cases where the vendor provides the tests at the premises of the vendor or any sub-vendor, the vendor except where otherwise specified shall provide free of charge such items as labour, materials, electricity, fuel, water, stores, apparatus and instruments as may be reasonably demanded by the				

	engineer/ inspector to carry out effectively such tests on the equipment in accordance with the contract and shall give facilities to the engineer/ inspector to accomplish testing.																		
7.0	INSURANCE																		
	The contractor shall make available the original insurance cover(s) taken by him, against his T&P, assets and workmen compensation and any other cover as may be pertinent to his works and obligatory in terms of law, to BHEL for necessary verification in regard to their adequacy, before commencement of work. However, irrespective of such verification/ acceptance, the responsibility to maintain adequate insurance coverage at all times during the period of the contract shall be of the contractor alone. Such insurance covers to be taken shall be in the joint names of the owner and the contractor. The contractor shall however be authorised to deal directly with the Insurance company(s) and shall be responsible in regard to maintenance of such insurance covers. Insurance covers to be taken by BHEL / Customer shall be as stipulated under relevant clause of Volume-IB.																		
8.0	DEVIATIONS/ CLARIFICATIONS																		
8.1	Normally no deviation with respect to tender is acceptable to BHEL. However, in case of unavoidable circumstances, the bidder may submit their query for seeking clarifications of BHEL as per modality stipulated in NIT or may submit the same along with his offer as per prescribed schedule/ format without any ambiguity. Any assumptions, presumptions, deviations etc. indicated or implied anywhere by the bidder except those indicated in the deviation schedule/ format will not be recognized and will not form a part of consideration/ offer. In the absence of such filled-up schedule/ format it will be understood and agreed that the bidder's offer is based on strict conformance to the specification and no negotiation would be allowed in this regard. BHEL reserve the right not to recognize any/ all deviations submitted after opening of the bid.																		
9.0	DEWATERING																		
9.1	Contractor shall ensure at all times that his work area & approach / access roads are free from accumulation of water, so that the materials are safe and the erection / progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of subsoil, surface water or catchments water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL.																		
10.0	TIME SCHEDULE/ COMPLETION PERIOD																		
10.1	<p>The entire work under the scope of work shall be successfully completed in all respect within 8 (Eight) months from date of start of work, as certified by Construction Manager, BHEL.</p> <p>Mobilization at site shall be done within 20 days from date of written intimation from BHEL. The exact date of start of work shall be reckoned based on certificate of Construction Manager, BHEL.</p> <table border="1"> <thead> <tr> <th>SI no.</th> <th>Major Milestone</th> <th>Months from the of start of work</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Construction of Pile Cap of Raw Water PH</td> <td>11 Weeks</td> </tr> <tr> <td>2</td> <td>Construction of Bottom raft of De-silting Chamber</td> <td>15 Weeks</td> </tr> <tr> <td>3</td> <td>Completion of RWPH</td> <td>6 Months</td> </tr> <tr> <td>4</td> <td>Readiness of De-silting Chamber</td> <td>7 Months</td> </tr> <tr> <td>5</td> <td>Completion of RW Elect Annexe & RW Chlorination & Balance work, if any.</td> <td>7 Months</td> </tr> </tbody> </table>	SI no.	Major Milestone	Months from the of start of work	1	Construction of Pile Cap of Raw Water PH	11 Weeks	2	Construction of Bottom raft of De-silting Chamber	15 Weeks	3	Completion of RWPH	6 Months	4	Readiness of De-silting Chamber	7 Months	5	Completion of RW Elect Annexe & RW Chlorination & Balance work, if any.	7 Months
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6	Overall Completion and handing over	8 Months
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The above milestones have been prepared in line with L2 schedule of BHEL & BIFPCL. A major milestone of different activities in L2 schedule for Unit #1 & Unit #2 with BIFPCL is given below. Contractor shall also responsible to complete the foundations/structures in their scope of contract within schedule time frame of project Milestone as given below.

Successful bidder shall furnish L-1, L-2/ L-3 schedule indicating break-up of start & finish dates of different activities for matching with following project schedule, for approval of BHEL. The successful bidder should also ensure monitoring of these activities on daily/ weekly/ monthly basis, whenever required by BHEL.

11.0 PRICE BID

11.1 Bidders should quote prices in USD as per format, Volume-III-Price Schedule provided in the tender. Bids shall be evaluated based on total price quoted.

12.0 TERMS OF PAYMENT

12.1	<p>The contractor shall submit his running bill (RA bill) once in a month at the end of each month in line with payment terms/ billing schedule indicated below. The RA bill complete in all respects accompanied by BHEL engineers certified/ measurement sheet, jointly signed, will be paid after passing of the bill subject to completeness & correctness. The measurement will be taken as specified in terms & conditions of contract and certified by the BHEL engineer of actual work. However, no extra payment shall be made in the event of delay in release of payment.</p> <p>95% pro-rata monthly RA payment shall be considered for payment based on monthly work completion certificate to be issued by BHEL engineer as per approved BBU/Price Schedule.</p> <p>The payment shall be released within 60 days from the date of receipt of complete invoice along with all necessary documents including Engineering Certificate.</p>
12.2	<p>Out of above 95%, 1.5 % of gross bill amount shall be paid in the following manner on certification by BHEL engineer after compliance of each of following activity in each month. In case of non-fulfilment of respective activity by contractor in each month, no payment shall be made by BHEL against corresponding activity and no claim of bidder at a later date, whatsoever, in this regard shall be entertained by BHEL.</p>
12.2.1	0.7 % shall be paid on compliance of housekeeping of contractor's working area and store/ office areas.
12.2.2	0.3 % shall be paid on compliance of general illumination of contractor's working area and stores, office area.
12.2.3	0.2 % shall be paid on compliance of applicable OHSAS requirement as per guidelines of BHEL/ PSER and as specified in the tender.
12.2.4	0.3 % shall be paid on compliance of applicable safety requirement as per guidelines of BHEL/ PSER and as specified in the tender.
12.3	<p>Balance 5% of contract value shall be paid against FAC (Final Acceptance Certificate) to be issued by BHEL / BIFPCL after completion of warranty period. However, if desired by vendor, this 5% may be released by BHEL against submission of equivalent amount bank guarantee as per Performance Bank Guarantee format, to be kept valid till warranty period, subject to the followings:</p>
12.3.1	(i) Receipt of certificate that all works are completed in all respects;
12.3.2	(ii) Reconciliation of materials / T&P / MMD;
12.3.3	(iii) Completion of final bill formalities and
12.3.4	(iv) Handing over to BHEL.

12.4	Contractor shall make their own arrangement for making payment of impending labour wages and other dues in the meanwhile.
12.5	Contractor have to submit BHEL entry gate pass of steel, and other materials required for the work, in absence of which their corresponding RA bills shall not be processed.
12.6	Subject to any deduction which BHEL may be authorized to make under the contract, the contractor shall on the certification of the BHEL engineer at site, be entitled to payment explained hereunder.
12.7	The bills will be sent to BHEL, Site Finance for scrutiny and payment will be made after processing / verification only.
12.8	The measurement will be taken by BHEL engineer as per relevant clause of GCC and certify regarding actual work executed in measurement book and bills for work. However no additional payment shall be made in the event of delay in release of payment beyond the stated period.
12.9	All admissible recovery / adjustment, etc. shall be made from interim payable amount.
12.10	BHEL site at its discretion may split up percentage break up and effect payment to suit the site condition, cash flow requirement, according to the progress of work.
12.11	<p>Payment shall be made in USD as per order.</p> <p>However for reasons, solely at the discretion of BHEL, if USD amount is not possible to be paid then BDT equivalent of USD will be paid as per of our currency Matrix.</p> <p>The quoted / accepted rate shall remain Firm throughout the contract period including extension period, if any, without any escalation till handing over.</p>
13.0	DELETED
14.0	TAXES, DUTIES ETC
14.1.0	IMPORT DUTIES:
14.1	<p>Bidder may please note that import for the project shall be in the name of our Employer / Owner of the Plant / Project and such import other than Office and Household Equipment shall be exempted from payment of Customs Duty, VAT & Supplementary Duty as per Special Order 373/655 Date: 13/12/2018 of National Board of Revenue, Govt. of Bangladesh. Also Regulatory Duty(RD), Advance Trade VAT(ATV) & AIT are exempted / not applicable.</p> <p>Any documentation needed for availing of Duty Free Imports will be submitted by the bidder in reasonable time having regard to the time for delivery of the work and the time for completion.</p>
14.1.2	However, if any of the taxes as mentioned above are paid by the bidder as per the extant law in force in Bangladesh, the same shall be reimbursed at actuals subject to production of documentary evidence in support of such payment. However, the bidder shall obtain prior approval of BHEL before deposition of such taxes.
14.1.3	Temporarily imported erection materials, machineries and spare parts during construction period of Project are exempted from payment of Customs Duty and VAT. Such items shall be exported within six months from the commercial operation date. Documentation for the same to be submitted / maintained by the bidder.
14.1.4	Any Taxes for exporting material from source country & as applicable in the source country shall be on bidder's account. However, bidder to take into consideration Duty Free Export Provisions in source country, as applicable, including that in GST in case of exports from India. As such, while offering the rates, the bidder may take into account the benefit of above provisions, as the cost of input to the bidder will be net of such taxes and adjust their offer price accordingly to make it more competitive.
14.2.0	BANGLADESH VAT
14.2.1	The Bidder shall submit copy of VAT registration Certificate (Musak-8), TIN Certificate, Trade License to the BHEL site office immediately after receiving the Order but before raising the first Tax Invoice against this tender.

14.2.2	The subject job shall be a Construction Job. As per Section 6(4aa) of The Bangladesh Value Added Tax Act, 1991, VAT shall not be collected by the bidder from BHEL as the Employer (i.e. Customer of BHEL) shall make deduction of VAT from BHEL's invoice and deposit the same to the Government Treasury. Documentary evidence shall be provided to the bidder
14.2.3	Adequate documents for not charging/ claiming VAT from BHEL shall be made available to the Bidder.
14.2.4	The bidder shall raise Tax Invoice (Challan Patra) as per Rule 16(1) (Musak-11) of the Value Added Tax Rules, 1991 mentioning Name, Address and VAT Registration Number of BHEL site office.
14.2.5	Bidder shall note that the Tax Invoice complying with Rule 16(1) of the Value Added Tax Rules, 1991 must contain the 'Bill to' and 'Ship to' details as below: BHEL Bangladesh VAT Regn. No. 00761853 Bharat Heavy Electricals Limited Power Sector Eastern Region, 2x660 MW Maitree Super Thermal Power Project, Moidara Village, Rampal Upazila, Bagerhat District, Bangladesh
14.2.6	Bidders shall quote price excluding Bangladesh VAT envisaging VAT exemption on the same. In this connection please note that VAT, if and as applicable, on Bidders Quoted Price and in case BHEL is unable to provide exemption documents shall be payable extra. In such case bidder shall submit self-certified copy of the Treasury Challan and / or self-attested copy of the Current Account (Musak-18) along with the Tax Invoice as an evidence of payment of output tax claimed from BHEL.
14.2.7	Value Added Tax Deduction at Source:
14.2.7.1	BHEL will not deduct any VAT from Bidder's Gross Bill and such bidder need not to load any Output VAT in Bidder's quoted price
14.3.0	INCOME TAX DEDUCTION AT SOURCE:
14.3.1	Bidder should have valid 12-digit TIN number in Bangladesh prior to start of work. Advance Income Tax (AIT) under the Income Tax Ordinance,1984(and rules made thereunder) shall be deducted at prevailing rates on Gross Invoice value from the bills unless Exemption Certificate from the appropriate authority/ authorities is/ are furnished under Income Tax Laws of Bangladesh
14.3.2	Since payment shall be made in Bangladesh. Bangladesh Income Tax (AIT) shall be deducted, if applicable.
14.4.0	The Bidder shall carry out their own tax diligence to get acquainted with the relevant rules and regulations of Bangladesh pertaining to the subject job.
14.5.0	Except otherwise mentioned above bidder shall quote their rates/ price inclusive of all taxes, duties, cess, any State or Central Levy, social security contribution and other Taxes in or outside Bangladesh (but excluding Bangladesh VAT & Import Duties) in line with provisions as mentioned above etc. together with variation thereto during contract period including extension, if any. BHEL shall not release any additional payment in this regard.
14.6.0	The bidder is responsible for compliance of all relevant Tax Laws of Bangladesh and all other related places outside Bangladesh in connection with this contract and BHEL will not bear any such liability.
14.7.0	New tax & duties, if imposed subsequent to latest due date of offer submission, as per NIT & TCN, as applicable, by statutory authority after due date of submission of latest price offer and within the contract period including extension, if any (provided reason for extension is not attributable to vendor), shall be reimbursed by BHEL at actual on production of relevant supporting document to the satisfaction of BHEL. However, the vendor shall obtain prior approval from BHEL before depositing new taxes & duties. Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.
15.0	PROJECT MANAGEMENT/ CONSTRUCTION MANAGEMENT

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	To meet the need of construction management at site, contractor shall provide the following services within quoted/ accepted rates.	
15.1	<p>CUSTOMS CLEARANCE</p> <p>The Contractor shall be responsible for Bangladesh customs clearance of all materials, supplies, equipment, tools and other articles shipped into Bangladesh by him for the implementation of his works, including the food and the personal effects of the Contractor's personnel.</p> <p>All payment for clearance charge, storage charge, etc. which are imposed by the relevant agencies of the Government of Bangladesh, relating to the clearance of equipment, materials and Plant that will be incorporated in the Permanent Works or relating to the Temporary Works shall be borne by the Contractor. Further, if the Contractor is delayed in submitting necessary shipping documents to the Employer, the demurrage charges by the Port Authority will be borne by the Contractor.</p> <p>Tools and equipment and other equipment of the Contractor for use during construction but which are to remain the property of the Contractor and which are to be exported by the Contractor from Bangladesh at the completion of the Work shall be carefully documented and specially listed to facilitate both import and export. The Contractor shall determine prior to shipment the customs regulations applicable to this special case as well as normal import rules and regulations applicable. The Contractor shall also be responsible for inland transport by barge/ truck/train to the Site.</p>	
15.2	<p>RECEIVING, TRANSPORTING, HANDLING AND STORAGE</p> <p>The Contractor shall receive, transport, handle, store and install all materials and equipment furnished under these specifications, or otherwise involved in the implementation of this Contract. It shall be the responsibility of the Contractor to determine the availability and capacity of transportation and unloading facilities (including for the transportation, delivery and receipt of all equipment, materials, Plant to the Site) and to make the required arrangements to secure the necessary facilities for the same.</p> <p>The Contractor shall be responsible for the prompt unloading of all equipment or materials. The Contractor shall pay any demurrage incurred due to delay in unloading and for any other reasons.</p> <p>The Contractor shall handle materials and equipment carefully to prevent damage or loss. The use of bare rope slings for handling will not be permitted unless specifically approved by the Engineer. Special handling devices shall be used when necessary to avoid damage.</p> <p>In addition the Contractor shall also comply with the requirements of Technical Specification with respect to the receipt, transportation, handling and storage.</p> <p>If BHEL has to unload of RS, SS, Copper or any other free issue materials before mobilization of the contractor for the interest of the project or If contractor fails to unload the BHEL free issue materials at site for any reason then BHEL shall be unloading the same and the cost of unloading with following rates shall be deducted from contractor RA Bill.</p> <p>i) For RS, SS, Copper or any other materials:- USD 4/MT or actual cost , whichever is higher.</p>	
15.3	<p>PLATFORMS</p> <p>Open platforms shall be constructed by the Contractor at least 50 cm above grade and shall have adequate flooring and base structure to support the stored materials and equipment.</p>	
15.4	<p>INDOOR STORAGE</p> <p>Indoor storage sheds shall be constructed by the Contractor by suitable means for keeping materials and equipment from contact with the ground and to protect it from the environment and outside</p>	

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	<p>atmosphere. Sensitive equipment (including inter-alia, electrical, I&C and other equipment) must be kept in dust proof and ventilated rooms and means have to be provided to maintain the moisture content at required levels, in accordance with Good Industry Practices.</p>
15.5	<p>SHORING</p> <p>Shoring shall be provided by the Contractor to safely support materials and equipment not less than 30 cm above the ground. The ground shall be compacted and concreted or asphalted.</p>
15.6	<p>WEATHERPROOF COVERINGS</p> <p>Weatherproof and flame resistant sheeting of sufficient size for outdoor storage shall be provided by the Contractor. The sheeting shall be carefully placed and tied down to prevent moisture and wind from entering underneath the sheeting and to otherwise protect the equipment, materials and other Plant.</p>
15.7	<p>IDENTIFICATION OF CONTRACTOR'S EMPLOYEES, VEHICLES & BUILDINGS</p> <p>The Contractor shall provide each of his employees and his Subcontractor's employees with a name tag bearing the picture, the name or initials of the employee, a serial number and the name of the Contractor. Each employee shall wear his badge visibly to the security personnel at any time.</p> <p>Subcontractor's employees with a name tag bearing the picture, the name or initials of the employee, a serial number and the name of the Contractor. Each employee shall wear his badge visibly to the security personnel at any time.</p> <p>All vehicles and large equipment furnished and used by the Contractor or his Subcontractors on the Work shall be clearly marked with the Contractor's or Subcontractor's business name. The Contractor's offices, stores, depots and other facilities shall also be clearly identified. The detailed requirements are defined in the Health, Safety and Environment (HSE) Plan of BHEL.</p> <p>Around-the-clock security presence and operational routine shall be maintained throughout the year. Passes and temporary identification permits shall be issued and examined and access to any part of the Site, the site offices and living accommodation shall be controlled and limited to those who have an authorization.</p>
15.8	<p>EXPATRIATE PERSONNEL</p> <p>The Contractor shall submit to Employer data of all personnel he intends to bring into Bangladesh for the performance of the Work. This data shall include the name and present address of each person, his intended assignment and responsibility in connection with the Work and a concise resume of his experience in the type of work to which he will be assigned. This data shall be submitted to the Employer at least thirty (30) days prior to their expected arrival in Bangladesh.</p> <p>Any expense associated with illness of the Contractor's personnel, including replacement thereof, shall be to the Contractor's account.</p> <p>Costs of passports, visas, travel documents, inoculations and other incidental expenses incurred by the Contractor's non-Bangladesh employees and their dependents occasioned by travel to and from Bangladesh shall be borne by the Contractor.</p>

	All accommodations and amenities for the Contractor's personnel and families (including all staff and labour) must be provided by the Contractor, and the Employer shall not have any liability for the same.
15.9	<p>SAFETY</p> <p>The Contractor shall comply with all ordinances and regulations including, but not limited to, National, State, Municipal laws and Department of Labour, Transmigration and Co-operation Regulations, and other Applicable Laws that are in force in the locality of the Works and shall comply with any instructions that may be from time to time issued by Employer. The safety rules and regulations laid down in the Health, Safety and Environment (HSE) Plan are to be strictly adhered to.</p>
15.10	<p>CONTRACT PLANNING AND CONTROL</p> <p>Before starting the Work at the Site, the Contractor shall submit the detail site management organization for approval by the Employer. Such proposals shall show clearly the Contractor's key personnel, classification and qualification with the detailed information and curriculum vitae for above key personnel.</p> <p>The Contractor's Representative, site manager and senior key personnel who will be responsible for working closely with the Employers staff to achieve efficient execution of the Contract shall be competent to conduct meetings and communications in the English language.</p> <p>The management organization shall include a planning and programming tools covering the Work, and shall apply the latest techniques in communication and analysis. The Contractor shall nominate a planning engineer to co-ordinate all planning activities.</p>
15.11	<p>RELEASE OF INFORMATION</p> <p>The Contractor shall not communicate or use in advertising, publicity, or sales release, photographs or other reproductions of the Work under this Contract, or descriptions of the size, dimensions, quantity, quality, or other information concerning the Work unless prior written permission has been obtained from the Employer.</p>
15.12	<p>SAFETY AND ACCIDENT PREVENTION</p> <p>It shall be the Contractor's responsibility to maintain throughout the construction period, a safety and accident prevention program satisfactory to the Employer which meets the requirements of Applicable Laws and of all other Governmental Authorities authority having jurisdiction over the Works. The rules and regulations laid down in the Health, Safety and Environment (HSE) Plan must be adhered to at all times.</p>
15.13	<p>SECURITY</p> <p>The Contractor shall be solely responsible for the security of all equipment and materials incorporated or to be incorporated in the Work by him and all equipment, materials, tools, supplies, structures, facilities and others properly used in the execution of the Work while in his care and custody.</p> <p>The Contractor shall conform also to any specific security requirements of Employer but such compliance shall not relieve the Contractor from the total responsibility for security.</p>
15.14	<p>HOUSING & TRANSPORT</p> <p>The Contractor shall arrange for suitable housing units together with furnishing and utilities in the close proximity of the construction Site for accommodation of all his expatriate personnel. If the services of any expatriate personnel of the Contractor or its Sub-contractors.</p>

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	<p>If the Contractor decides in consultation with the Employer that the health or safety of any of his personnel is or might be jeopardized by political or health hazards in Bangladesh, the Contractor may, after forty eight (48) hours' notice, order its employees and the employees of its Subcontractors and suppliers to return to their headquarters or other safe location, in which case the Work will be deemed to be suspended for the duration.</p> <p>The Contractor shall provide to the extent agreed transport vehicles for use during construction period by the expatriate as well as local personnel.</p>
15.15	<p>PROPRIETARY NAMES</p> <p>Whenever a material or article is specified or described on the plants by using the name of a proprietary product or by using the name of a particular manufacturer or vendor, the specific item mentioned shall be understood as establishing the type, function and quantity desired. Unless otherwise specified, other manufacturers' products which in the opinion of the Employer are equivalent of those specified will be accepted. Such items shall be submitted for approval prior to their incorporation in the Works.</p>
15.16	<p>PERFORMANCE OF THE WORK</p> <p>The Contractor shall conduct all Works in such a manner as to cause the least possible disturbance or damage to the environment. In cases where some temporary disturbance or damage is unavoidably caused due to the nature of the work, the Contractor shall, as soon as possible, remove the cause of such temporary disturbance, repair the damage and, in general, restore the affected areas to their original condition to the extent possible, and in a manner satisfactory to the Employer, the landowner and any authorities.</p> <p>Prior to commencement of the Work, the Contractor shall provide details of its EMP specifically addressing the following:</p> <p>Environmental management system and manual – policies, standards and procedures, and programs; organization / responsibilities;</p> <p>Training</p> <p>Incident and accident investigation;</p> <p>Management support;</p> <p>Environmental protection, mitigation and restoration;</p> <p>Emergency preparedness and response;</p> <ul style="list-style-type: none"> • Socio-economic plans, including historical and cultural resources; • audit, monitoring and corrective action; • information and records management; and, • Integration of safety & health requirements with the EMP. <p>All aspects of the EMP and the environment work requirements are the Contractor's accountability and the Contractor, its management and its Site supervisory staff will be held responsible for its implementation.</p> <p>All relevant Health, Safety and Environment (HSE) issues, results of audit and monitoring plans and programs, and HSE performance indicators will be communicated to the Contractor's management</p>

and the Employer through daily inspection meetings and reports, weekly construction meetings, monthly meetings, and in terms of the monthly project report.

The Contractor shall ensure that he has complete knowledge of all the laws, statutes, statutory instruments, regulations, rules, treaties and conventions (by whatever name or title), environmental protection regimes and other Applicable Laws, in each of the jurisdictions where he shall perform the Work. The Contractor shall also take all necessary measures to protect the atmosphere, ocean, rivers, groundwater, seaports and land from pollution. In any event the Contractor shall promptly use its best efforts to eliminate and clean up any pollution caused, directly or indirectly, by the Contractor or which occurs at the Site, or other sites associated with this Work.

The Contractor shall cooperate in all respects with any participant environmental representatives and with governmental persons, and allow them to inspect any and all equipment or operations that they wish to observe. The Contractor shall, at all times, be ready to discuss the implementation of the Contractor's safety, health and environmental protection program.

15.17	INSTRUCTION TO WORKERS (ORIENTATION / INDUCTION) The Contractor shall ensure that all employees, subcontractors, servants and agents (and employees, servants and agents of all Subcontractors) participating in the Work, are advised about the strategy and plan for managing the environmental-social issues related to the work, and on their role and responsibility; instructed on the requirements of environmental laws, rules, regulations and specific permit conditions applicable to the area and the Work; instructed on the application and use of the required personal protective equipment (PPE) for their job duties and functions; and, have received the appropriate training in the use, application and maintenance of PPE.
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15.18	RISK MANAGEMENT The Contractor shall clearly state the management methods and techniques to be used to identify potential hazards and risks at any stage prior to the execution of a particular activity. If required, specific procedures shall be developed by the Contractor to eliminate or mitigate the hazard to a safe level prior to the work being authorized. All requirements of the project's environmental impact assessments ("EIA") and other relevant assessments and conditions of approvals accorded by the relevant Governmental Authorities must be considered by the Contractor in the development of the Contractor's Health, Safety and Environment (HSE) Plan, EMP and other related/relevant plans. The Contractor is required to implement a system whereby all risks associated with hazardous substances, whether chemicals, by-products, effluents or waste materials, are minimized and/or eliminated. In conjunction with its emergency plans and procedures, the Contractor shall develop and submit to the Employer's Representative a "Safety Philosophy Document" that details the strategy to be adopted for control and shutdown systems, including alarms and programmable electronic control systems.
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15.19	EMERGENCY PREPAREDNESS, RESPONSE & CONTINGENCY PLAN The Contractor shall prepare an Emergency Preparedness, Response and Contingency Plan (a detailed program of action to minimize the effects of an abnormal event requiring prompt actions beyond normal procedures to protect human life, minimize injury and safeguard the environment) for environmental and personal safety emergencies or incidents. This plan shall be found within the Contractor's Safety & Health and/or Environmental Programs. The purpose of the plan shall be to limit insurance and damage to people, property and the environment respectively.
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	The plans, procedures, and trained personnel shall be in place for the duration of the Contract to manage and control emergency situations and incidents in a proper and expeditious manner.	
15.20	SERVICING AND FUELLING	<p>To ensure adequate response capability in the event of a fuel, ground spill or other spill, all fuel transport vehicles and the Contractor's foreman vehicles shall carry a suitable amount of commercial absorbent material. In addition, floating absorbent pads and booms for spill clean-up on open water shall be kept accessible on the construction Site.</p> <p>All service vehicles and/or equipment utilized for re-fuelling must be equipped with automatic shut-off valves. All equipment or servicing activities with the potential for accidental spills (e.g., oil changes, hydraulic repair, coolants) will require appropriate containment methods to be in place (i.e., storage containers, impervious liners, absorbent materials, etc.) prior to the start of the activity.</p>
15.21	SOIL AND GROUNDWATER PROTECTION	<p>The Contractor shall develop and implement soil and groundwater protection measures. Protection measures shall include building and impervious floors, where appropriate. The Contractor shall make an assessment of groundwater quality prior to the start of construction and prior to commissioning to demonstrate to Employer's Representative that construction activities have not adversely affected the environment. Groundwater quality shall be monitored throughout the construction phase.</p>
15.22	HEALTH HAZARDS	<p>Worker and public health is a critical part of any HSE management program. The Contractor shall control substances and materials that may be a hazard to worker's health. These controls shall be a combination of hazard communication, safe work systems and the controlled handling and disposal of hazardous materials. The Contractor's controls shall commence at contract preparations and procurement stages, where all vendors and subcontractors shall be required to submit Material Safety Data Sheets ("MSDS") for all hazardous materials that will be supplied, provided or brought onto the Site. These MSDSs shall be forwarded to Contractor's HSE Manager for review and records management.</p> <p>In the event hazardous materials are to be used, the Contractor shall carry out assessments according to recognized international standards, to determine if there are any more suitable or less hazardous materials that could be substituted for the original materials. Only when the Project Manager, Employer and his Engineer and the Contractor are satisfied that assessments have been completed, and control measures are adequate to protect worker health, the materials shall be allowed on the project worksite. The Contractor's control measures shall include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Material transport, storage, labelling, packaging, and disposal, <input type="checkbox"/> Personnel protective equipment (PPE), <input type="checkbox"/> Health surveillance and monitoring, and <input type="checkbox"/> Emergency procedures and training. <p>All explosive materials to be used for blasting during Site preparation shall only be handled by approved and qualified personnel. All explosive materials shall be stored in a secure, limited access</p>

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sites, protected from workers and the public, and removed from the site every day and immediately after use.	<p>All radioactive equipment and materials shall only be used by qualified, approved and permitted personnel. Radioactive materials must be stored in approved and protected containers. Radioactive materials and waste products shall not be disposed of on-site but removed in protective containers and disposed at government approved storage and disposal sites</p>
15.23	<p>WASTE MATERIAL MANAGEMENT</p> <p>The Contractor shall ensure that waste management identification, handling, transport and disposal are addressed in the development of their HSE management plans.</p> <p>The Contractor's employees responsible for handling hazardous materials (including wastes) shall receive training and certification in the handling, transport, storage and disposal of chemicals and regulated or hazardous materials. Where applicable, Workplace Hazardous Materials Information System ("WHMIS") certification and training, or its equivalent, shall be made available to employees. Regular written updates shall be included for continued employee awareness.</p> <p>The Contractor shall ensure proper segregation and isolation for wastes that could react together in the event of a leak or other incident. These facilities shall include lockable, fire proof cabinets or storage in shelving units separated by fireproof barriers or walls.</p> <p>The Contractor shall dedicate a space for waste and drum storage. The storage area must be easily accessible for spill containment and emergency response and not be susceptible to flooding.</p> <p>For any waste storage area which could accumulate hazardous gases, vapors, or dust due to the nature of the wastes stored, the Contractor must supply suitable ventilation or other controls to ensure exposure by employees is kept below required minimum standards. Storage areas for hazardous wastes shall be designated as restricted areas and shall be suitably equipped to control an incident involving a leak or spill.</p> <p>The Contractor shall make available suitable fire extinguishing equipment and proper electrical bonding equipment in all areas involving the handling and storage of flammable and reactive wastes.</p> <p>Disposal of wastes by burning will not be allowed on the construction site.</p> <p>Sumps and waste pits shall not be used for waste storage at the work site. Sumps should only be used for temporary control and containment of spills, equipment leaks, etc. If the Contractor encounters former sump sites or waste pits during ground surveys, the Contractor shall be identify and investigate the same. If any contamination is suspected, the Contractor shall excavate, remove and where required replace with an approved sump container system.</p> <p>The Contractor shall develop and implement a waste disposal control system. This system shall control every load of waste leaving the worksite, detailing the type of waste disposal, waste origin and destination, approximate weight, date and transport details on a waste manifest/document. These documents shall be audited.</p>
15.24	<p>SPILL RESPONSE AND CONTROL</p> <p>All spills shall be stopped and cleaned up immediately to avoid potential impact to water and soil quality. All spills shall be reported using the Incident Management Process. Under no circumstance</p>

contaminated material may be “stored” on the work site.

All spills shall be rapidly stopped and appropriately eliminated as defined in the Contractor’s Emergency Preparedness, Response and Contingency Plan. Spills shall be contained in a way that will prevent their redistribution. All ground spills shall be contained as quickly as possible through diking, suction methods, excavation and the use of absorbents or other appropriate recovery techniques.

A list including the type, quantity and location of the storage of retaining and clean up equipment to be used during construction shall be prepared. The list shall include the procedures and mitigation measures to be used in case of a spill. A written inventory will also be prepared, before starting construction works, including lubricants, fuels, solvents, chemicals and other materials that might be accidentally discharged during construction.

All on-site fuel storage tanks shall be located in an impermeable secondary containment area with a holding capacity equal to 110% of the largest tank within the berm. For above ground tanks, the tanks shall be surrounded by a berm, the entire area covered with a suitable commercial absorbent material and with a sealed plastic liner to form an area that can be pumped out in the event of a leak in the tank. A waste handling plan shall be made with the purpose of identifying the procedures necessary for cleaning and disposing of residues from a major spill. In the event of a spill, the Contractor shall make all resources available to contain and clean up the spill. Traffic shall be minimized in and around the spill site.

15.25 NOISE CONTROL

Noise level specifications to be followed by the Contractor in design, assessment and monitoring activities are based upon the maximum (acceptable) levels which plant personnel may be exposed during their normal working duties. The Contractor shall be familiar with and comply with the environmental guidelines as issued by the relevant Governmental Authorities in Bangladesh, including the Department of Environment, Government of Bangladesh and other relevant Applicable Laws.

All internal combustion motors of vehicles, machinery and equipment used during the construction phase, shall have adequate noise silencers, and shall be kept in good operating conditions, during the entire construction period. Where temporary noise pollution of greater than 85 dBA will occur, temporary silencers shall be used. Equipment noise should not exceed the specified limits at accessible locations.

15.26 CONSTRUCTION TRAFFIC PLANNING

The Contractor shall ensure that the construction Site is organized in such a way that pedestrians can move safely and without risk. The Contractor shall firstly select the lowest period of traffic flow for equipment crossings; and secondly, ensure that traffic patterns and entrances to private and public roads for access are not obstructed during construction activities. All site entry will be controlled by vehicular passes. Road closures, on-site and off-site, shall be with the approval of the Contractor’s site manager and/or road closure permit. Site traffic shall be minimized and speed limits posted and enforced.

15.27 HOUSEKEEPING

All construction debris and other garbage shall be continuously collected and disposed at an approved facility. At the end of each day, all waste material shall be removed from the construction Site and deposited at the approved allocated area. The approved procedures to manage waste shall

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	<p>be specified in the Contractor's waste management plan. All empty hazardous material containers shall be removed from the work area as soon as is practicable. All empty gas containers and bottles shall be returned to their storage area and secured properly.</p> <p>The Contractor's shall prepare a pest and vector control program to address specific site conditions, including a mosquito control program.</p>
15.28	<p>CONSTRUCTION CAMPS</p> <p>The location of work places, camps, areas of storage and installation of works, compression, regulation and communication stations shall be located on levelled land, avoiding areas with non-cohesive soils to avoid erosive processes.</p> <p>Health conditions in the camp shall be controlled in order to prevent contamination of adjacent groundwater or surface water resources. Domestic sewage generated at the construction sites shall be eliminated by two systems of septic/absorption tanks or chemical toilets located on the sites.</p> <p>Solid combustible garbage shall be collected and secured daily, until disposal, to prevent the attraction of livestock, vermins and wild animals. Residue shall be disposed of, along with non-combustible garbage, in a disposal location approved by the Authorities.</p> <p>Upon abandonment, the camp site area shall be cleared of all trailers, piping, cable, insulation, lumber, blockage, metal wastes, etc., and re-graded according to the landscaping concept. These guidelines and procedures for the management of domestic and other waste shall be specified in a plan.</p>
15.29	<p>SITE REGULATION MANUAL</p> <p>The Contractor shall thirty (30) days prior starting any Work at the Site furnish a detailed and comprehensive site regulation manual for its proposed operation and works on the Site, which shall be based on the site related regulations and requirements in the Contract and which shall be subject to Employer's approval. All work on the Site, shall be carried out in compliance with the so approved site regulation manual.</p>
15.30	<p>PLANNING & MONITORING</p> <p>15.30.1 The bidder shall prepare detail construction schedule (L-3) as per completion dates given in this document. This schedule must include all milestone and key activities for each subsystems / components in the areas of engineering (wherever applicable), procurement, manufacture (wherever applicable), excavation / construction / erection. This network must conform to the overall project schedule. The bidder should also ensure monitoring of these activities at least weekly basis to start with and on daily basis whenever required by BHEL.</p> <p>15.30.2 The bidder shall also prepare progress report indicating progress on key activities, management summary for critical activities and list of actions requiring attention of BHEL. This schedule is to be preferably made in PRIMAVERA / MS PROJECTS, so that the same is compatible with BHEL's project management software.</p> <p>15.30.3 The contractor's site office must have facilities of communications like Fax, E-mail, and telephone with STD facility within a month from LOI.</p>
15.30.2	<p>PROGRESS REPORTING</p> <p>15.30.2.1 The bidder shall submit daily, weekly and monthly progress reports for work force, materials reports, consumables (steel / gases / electrodes) report and other reports as per pro-forma considered necessary by BHEL. In case of any failure on contractor's part to comply with this, BHEL may at its discretion, consider to withhold part payment against their RA bills.</p> <p>15.30.2.2 The progress report shall indicate the progress achieved against planned with reasons indicating delays, if any, and shall give the remedial actions which the contractor intends to take to make good</p>

	the slippage or lost time, so that further works again proceed as per the original program and the slippages do not accumulate and effect the overall program.	
15.30.2 .3	The daily work force reports shall clearly indicate the work force deployed, category-wise specifying also the activities in which they are engaged.	
15.30.2 .4	Weekly progress review meetings will be held at site during which actual progress during the week vis-à-vis scheduled program shall be discussed or actions to be taken for achieving targets. For discussions, the contractor shall present program of subsequent week. The contractor shall constantly update/review his work program to meet the overall requirement.	
15.30.2 .5	Periodic progress reviews on the entire activities of execution in respect of supply and works in scope of bidder will be held once in a month at Kolkata / site. These meetings will be attended by reasonably higher officials of the contractor and will be used as a forum for discussing all areas where progress needs to be speeded up. The contractor shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.	
15.30.2 .6	During construction contractor shall take an average twenty colour digital photograph / slides each month (not less than four per week) of the works during progress. In case of failure in providing such photograph in each month, an amount of USD 260 per month shall be deducted from contractor's RA bill.	
15.30.2 .7	Successful bidder has to provide for electronic/ computerized storing and re-production / printing / plotting of various data, log sheets, protocols, measurements etc. These may be stored in CD (as per requirement) and handed over to BHEL as per requirement.	
15.30.2 .8	<p>PHOTOGRAPHS</p> <p>The Contractor shall furnish to the Employer three (3) hard copies (and three (3) soft copies in .jpeg or .pdf format on separate CDs/DVDs) of each photograph taken to show shop assembly of equipment and the monthly stages of equipment installation. Each photograph shall show upon its face, the date, the Contractor's name, and description of the view taken. Photographs shall be taken of each assembly or sub- assembly to indicate the progress of the Work. Additional photographs shall be taken when and where required as directed by Employer and/or the Engineer. Shop photograph shall be not smaller than 120 mm by 150 mm in size.</p>	
15.30.3	<p>SITE ORGANIZATION</p> <p>15.30.3 .1 The contractor shall maintain a site organization of adequate strength in respect of manpower, construction machinery and other implements at all time for smooth execution of the contract headed by a competent construction manager for site operations with sufficient level of authority to take site decisions. The vendor will submit organization chart (showing the name of SITE-IN-CHARGE) with individual bio-data indicating various levels of experts to be posted for supervision in the fields of supervision and execution, quality, material management, planning, safety, etc. The organization shall be reinforced from time to time, as required to make up slippage (if any) from the schedule without any commercial implication to BHEL. The organization chart is to be submitted within 10 days from the date from start of work.</p> <p>15.30.3 .2 Following (minimum) engineering manpower with power plant construction background to be deployed at site by the successful vendor for their day to day supervision etc.</p> <p>15.30.3 .2.1 Qualified safety officers with assistants (exclusive for safety supervision for project jobs).</p> <p>15.30.3 .2.2 Engineer & Supervisors for quality inspection.</p>	
		Officer – Minimum One No. Assistant – Minimum Two Nos. Manpower and Infrastructure details available in Annexure B. Contractor shall be implemented / deployed of Manpower at site as mentioned in Annexure B.
		Engineer-One Number Two supervisor

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15.30.3 .2.3	Site supervising engineer and supervisors for civil works	As per requirement
15.30.3 .2.5	Chemist/Quality engineer for Civil Laboratory	One no.
15.30.3 .2.6	Planning Engineer (exclusively for planning)	One no. Engineer
15.30. 3.3	Deputation of above man-power shall be jointly decided at site in line with construction schedule.	
15.30. 3.4	Engineer / supervisor for other functions like store & purchase, material management, fin, administration etc. are to be provided as per site requirement and not considered above .	
15.30. 3.5	In the event of non-deputation of engineer/ supervisor by the bidder as per above agreed schedule, BHEL shall reserve the right to deduct USD 1050 per man-month for engineer, USD 650 per man-month for the supervisor / safety officer / chemist and USD 650 per man-month for safety supervisor from RA bills. Further induction of manpower regarding site supervisor & site engineer will be decided at site as per requirement without any financial implication.	
15.30. 3.6	BHEL reserves the right to reject or approve the list of personnel proposed by the contractor. The persons whose bio-data have been approved by BHEL will have to be posted at site and deviation in this regard will not be permitted unless specific & reasonable justification is made.	
15.30. 3.7	In addition to above, a well experienced qualified engineer to be designated, as 'Project Co-coordinator', shall be deployed by the contractor. Such engineer shall have adequate exposure on the job and shall remain fully involved in all planning activities, guidance etc. to contractor's own team during the complete execution period of contract.	
15.30. 3.8	The contractor should also submit to BHEL for approval a list of T&Ps along with their fitness certificates. The tools & tackles shall not be removed from site without written permission of BHEL.	
15.30. 3.9	The contractor should also submit network programs for the erection of various items. These networks shall show the BIFCL/ BHEL hold points, which have to be cleared by BIFCL/ BHEL, or their authorized representatives before further erection can take place. These programs for the erection would clearly identify responsibilities of the contractor and BIFCL/ BHEL. It is the responsibility of the contractor to get the Networks approved by BHEL within four weeks of the date of finalization of award of work/ placement from start of work.	
16.0	QUALITY CONTROL & QUALITY ASSURANCE	
16.1	Contractor's engineers & supervisors shall be adequately qualified and also inclined to do a quality job. The quality assurance engineer shall co-ordinate all aspects of quality control, inspection, implementation of quality assurance procedures laid down in Quality Plan and technical specification by BHEL. He shall fill up quality assurance log sheets / formats and submit to BHEL for joint inspection and acceptance. The contractor shall fill up, maintain & preserve the quality records in computerized media. BHEL's authorized representative shall be given free access at all time to such quality related records etc. for inspection, review etc.	
17.0	QUALITY ASSURANCE PROGRAMME	
17.1	The contractor shall arrange for suitable quality assurance programme to control all activities pertaining to the scope of work, as necessary. Such programs shall be outlined by the contractor & shall be finally accepted by BHEL. A quality assurance programme of the contractor shall generally cover the following	
17.2	Organization structure and qualification data for key personnel of the contractor for the management and implementation of proposed quality assurance programme	
17.3	The procedure for source inspection, incoming raw material inspection, verification of material purchased etc.	
17.4	System for maintenance of records.	
18.0	GENERAL REQUIREMENTS – QUALITY ASSURANCE	

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18.1	All materials, components and equipment covered under the specification shall be procured, manufactured, erected, commissioned and tested, as applicable, at all stages as per comprehensive quality assurance program. An indicative program for inspection / test, to be carried out by the contractor, for some of the major items is given in the respective technical specification.
18.2	Field quality plan will detail out the quality practices and procedures etc. to be followed by the contractor's site quality control organization, during various stages of site activities from receipt of material / equipment at site.
18.3	BHEL reserves the right to carry out quality audit and quality surveillance of the systems and procedures of contractor's quality management. Contractor shall provide all necessary assistance to enable BHEL to carry out such audit.
18.4	Quality audit / approval of the results of test & inspection will not prejudice the right of BHEL to reject an equipment service not giving desired performance and shall not in any way limit the liabilities and responsibilities of the contractor in earning satisfactory performances of equipment/ service as per specification.
18.5	Repair / rectification procedure to be adopted to make any job acceptable shall be subject to the approval of BHEL.
18.6	All the latest relevant codes as per technical specification should be available with the contractor at site within 15 days from the date of placement from start of work or otherwise specified by Construction Manager/ Project Manager, BHEL.
19.0	HEALTH, SAFETY & ENVIRONMENT
19.1	REFER DOCUMENT NUMBER :-HSEP:14-MAITREE:VENDOR: DATE: 05.05.16
	DOCUMENT TITLE:-HEALTH, SAFETY AND ENVIRONMENT PLAN FOR 2X660MW MAITREE SUPER THERMAL POWER PROJECT
20.0	SPECIFIC REQUIREMENTS FOR ISO 9002
20.1	Contractors shall ensure that all their staff / employees are exposed to periodical training programs conducted by qualified agencies/ personnel on ISO 9002 Standards.
20.2	Contractor shall ensure that the quality is maintained in all the works connected with this contract at all stages of the requirement of BHEL.
20.3	Contractor shall ensure that all MMDs that are used, whether owned by the contractors or used on loan, are calibrated by the authorized agencies and the valid calibration certificate will be available with them for verification by BHEL. A list of such instruments possessed by the contractor at site with its calibration status is to be submitted to BHEL Engineer for control.
20.4	Contractor shall ensure that fitness certificate of the tools & plants, that are in use, whether owned by contractor or issued on loan, are tested by authorised agency and the valid fitness certificate is available for verification by BHEL.
20.5	Contractors shall arrange for the inspection of the works at various stages as required by BHEL. The contractors shall take immediate corrective action for the non-conformances if any, observed and pointed out by BHEL.
21.0	INTEREST BEARING RECOVERABLE ADVANCE/ MOBILISATION ADVANCE
21.1	Not applicable for this tender.
22.0	OVER RUN CHARGES
23.0	REVISION ON ACCEPTED CONTRACT RATE
23.1	Not applicable in this tender
24.0	PRICE VARIATION CLAUSE / ESCALATION
24.1	Not applicable for this tender.
25.0	LIQUIDATED DAMAGE
25.1	Intermediate Milestones

25.1.1	In case delay in achieving the Milestone as mentioned in Serial No. 2 of CL. No. 10.1 above, is solely attributable to the contractor, 0.5% per week of executable contact value*, limited to maximum 2% of executable contact value, will be withheld.
25.1.2	In case delay in achieving the Milestone as mentioned in Serial No. 4 of CL. No. 10.1 above, is solely attributable to the contractor, 0.5% per week of executable contact value*, limited to maximum 3% of executable contact value, will be withheld.
25.1.3	Amount already withheld, if any against slippage of Serial No. 2 of CL. No. 10.1 above, shall be released only if there is no delay attributable to contractor in achievement of Milestone as mentioned in Serial No. 4 of CL. No. 10.1 above.
25.1.4	Amount to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.
25.1.5	Final deduction towards LD (if applicable), on account of delay attributable to contractor shall be based on final delay analysis on completion/closure of contract. Withheld amount, if any due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.
25.1.6	In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery.
25.2	Overall Completion
25.2. 1	If the contractor fails to maintain the required progress of work which results in delay in the completion of the works 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 ceiling specified below. For this purpose, the period of delay shall be the delay attributable to the Contractor for the completion of work as per contract. Contract Value for this purpose, shall be the final executed value exclusive of ORC, Extra Works executed, Supplementary / Additional Items and PVC.
25.2. 2	If Completion of work goes beyond specified contract period of 8 (Eight) months from date of start of work, as certified by Construction Manager, BHEL, LD will be imposed with maximum LD amount shall be 10 % of total contract value.
25.2. 3	BHEL shall deduct the amount of such compensation from any money due or which may become due to the contractor and/or recover such compensation from the bank guarantees / security deposit of the contractor. To be entitled to impose such compensation, BHEL will not be required to prove that he has incurred such amount as actual damage.
25.2. 4	BHEL reserve the right to cancel the order/ contract or a portion thereof at the risk & cost of the contractor and the contractor shall be liable to BHEL for any excess costs thereof.
Note :-	*Executable Contract value- Value of work for which inputs/fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.
26.0	GUARANTEE / WARRANTY
26.1	The contractor will be responsible for the quality of workmanship, quality of materials/ items and design for which the contractor is responsible.
26.2	Guarantee / warranty period shall be 24 months from the date of issue of PAC including dredging work till completion of the Guarantee/Warranty period as per relevant clause of GCC. Commencement of guarantee period shall be from the date completion of work under the contract as certified by BHEL.
27.0	EXTENSION OF TIME FOR COMPLETION
27.1	If the completion of work as detailed in the scope of work gets delayed beyond the contract/ completion period due to reasons not attributable to contractor, the contractor shall make request for an extension of the contract and BHEL at its discretion may extend the contract. However such

	extension shall not entitle the vendor for price revision or price compensation as this being FIRM price contract.
27.2	Based on review of agreed & jointly signed L-2 / construction schedule (as enumerated in the tender), the balance work at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to contractor. Further 'Time extension' or 'Time extensions' at the end of previous extension shall be worked out similarly.
27.3	However if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty / LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk and cost of contractor.
27.4	A joint program shall be drawn for the balance amount of work to be completed during the period of 'Time Extension', along with matching resources to be deployed by the contractor as per specified format. Review of the programme and record of shortfall shall be done.
27.5	During the period of 'Time extension', contractor shall maintain their resources as per mutually agreed program
27.6	At the end of total work completion as certified by BHEL engineer, and upon analysis of the total delay, the portion of time extensions attributable to (i) Contractor, (ii) Force majeure conditions, and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. The total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/ levied for the portion of time extensions attributable solely to contractor after adjusting delay attributable to BHEL & Force majeure and recoverable from the dues payable to the contractor.
28.0	EARNEST MONEY DEPOSIT (EMD / SECURITY DEPOSIT (SD) / PERFORMANCE BOND (PB)
28.1	EARNEST MONEY DEPOSIT (EMD)
1	<p>EMD is to be paid by tenderers for securing fulfilment of any obligations in terms of the NIT.</p> <p>In case of EMD submitted in USD by the successful tenderer, the same shall be converted and adjusted towards the required amount of Security Deposit of 50%. In case of EMD in INR, whole EMD shall be converted into USD as per stipulated selling conversion rate of INR to USD as per State Bank of India (SBI) publication on tender floating date. In case of EMD in BDT, whole EMD shall be converted into USD as per stipulated selling conversion rate of BDT to USD as per Bangladesh Bank publication on tender floating date.</p> <p>Tender cost & EMD can be submitted in INR/ USD/ BDT for this tender.</p> <p>Exchange Rate of currency as available in the web site of Bangladesh Bank on the tender floating/publishing date. If the date happens to be a holiday / or rate is not published, then the exchange rate of next day / next published day will be considered.</p> <p>Irrespective of submission in any of the aforesaid modes, amount of refund of EMD shall be net of submitted EMD less applicable Bank charges.</p>
28.1.2	<p>EMD & Tender cost amount can also be submitted directly by Foreign Bidders (other than Indian bidders) to the followings Bharat Heavy Electricals Limited bank account in Bangladesh-</p> <p>EMD & Tender cost amount can also be submitted directly by Foreign Bidders (other than Indian bidders) to the followings Bharat Heavy Electricals Limited bank account in Bangladesh-</p>

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	<p>1. SBI (Branch Address:-Khulna, Bangladesh), A/C No. 05620257520201, BDT Account., SWIFT: SBINBDDH056, Routing number : 220471543</p> <p>2. SBI (Branch Address:- Khulna, Bangladesh), A/C No. 05620257520202, USD Account, SWIFT: SBINBDDH056, Routing number : 220471543</p>	
28.1. 3	<p>EMD & Tender cost amount can also be submitted directly by Indian Bidders to the followings Bharat Heavy Electricals Limited bank account in India-</p> <p>1. SBI(Branch Address:-Commercial Branch, Saltlake, Sector V, Kolkata ,Branch Code SBIN0004289),A/C No. 11107800029,INR Account.</p>	
28.1. 4	<p>Amount of EMD exceeding INR 20 Lakh may be submitted in the form of Bank Guarantee (INR or eqv. USD).</p>	
28.1. 5	<p>All other terms & conditions shall be as per GCC.</p>	
28.2	<p>SECURITY DEPOSIT(SD)</p>	
28.2.1	<p>The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.</p>	
28.2.2	<p>At least 50% of the required Security Deposit, including the EMD, shall be collected in before start of the work. Balance of the Security Deposit shall be collected by deducting 10% of the gross amount in USD progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is collected.</p> <p>If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor.</p> <p>The recoveries made from running bills (cash deduction towards balance SD amount) can be released against submission of equivalent Bank Guarantee in acceptable form, but only once, before completion of work, with the approval of the authority competent to award the work.</p>	
28.2.3	<p>All other terms & conditions shall be as per GCC.</p>	
28.3	<p>PERFORMANCE BOND</p>	
28.3.1	<p>Performance bond is not applicable.</p>	
29.0	<p>CERTIFICATE TOWARDS COMPLETION</p>	
29.1	<p>The work under the scope of the contractor shall be deemed to have been completed in all respects only when so certified by BHEL / owner. The decision of BHEL in this regard shall be final and binding on the contractor.</p>	
30.0	<p>CIVIL LABORATORY</p>	
30.1	<p>Contractor shall establish and maintain civil laboratory with necessary equipment (as per Annexure-A) for conducting relevant tests at site, as required.</p> <p>Any testing required to be carried out at site as per joint discussion at site and technical specification have to be arranged by you for all the works at your own cost.</p>	
31.0	<p>CONSTRUCTION SCHEDULE</p>	
31.1	<p>Entire work shall be carried out in accordance with the broad construction schedule given in CL No.10.1 above. Within 30 days from start of work, the contractor shall discuss with BHEL site engineer & furnish detail construction schedule (L-3/ L-4) indicating all milestones on the basis of major activities and get it approved from BHEL engineer. This schedule will undergo review and based on</p>	

	progress vis-à-vis project requirement, contractor shall have to submit revised schedule for approval of BHEL.	
31.2	Deleted	
31.3	The contractor shall plan his work in such a manner so as to meet the overall project schedule, in consultation with BHEL/ BIFCL engineer.	
31.4	Contractor shall submit daily work program based on above construction schedule. Deferment of above schedule is not acceptable. Contractor will adhere to schedule and resource planning to be augmented to ensure completion as per schedule.	
31.5	Periodic progress reviews on the entire activities of execution in respect of supply & works in scope of contractor will be held once in a month at Kolkata / site. These meetings will be attended by reasonably higher officials of the contractor and will be used as a forum for discussing all areas where progress needs to be speeded up. The contractor shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.	
31.6	Above schedule is indicative. The contractor shall plan his work in such a manner so as to meet the overall project schedule, in consultation with BHEL/BIFCL Engineer.	
32.0	PAYMENT FOR ADDITIONAL/EXTRA ITEMS FOR CIVIL FOUNDATION WORKS	
32.1	It shall be as per relevant clause of the GCC. However, "BPWD Schedule of Rates 2014" as mentioned in the price schedule will be considered.	
33.0	DELETED	
34.0	TOOLS & PLANTS (TO BE PROVIDED BY CONTRACTOR)	
34.1	Tentative list of T&P to be deployed by contractor for successful completion of work is detailed below.	
34.2	It may be noted that the list is not exhaustive and is only for general guidance. The contractor is required to provide all necessary T&P (other than those specified to be provided by BHEL, if any) measuring (calibrated) instruments & handing equipments to maintain work progress for timely completion of total work as per contract. In case of project requirement, some activities may have to pre-pone. In such cases the contractor may have to deploy additional T&P. Quoted rate shall be inclusive of such emerging requirements. However, contractor shall submit deployment plan of all T&P along with tender bid.	
34.3	In the event of any failure on the part of the contractor to deploy T & P to sustain desired work progress , BHEL may at his discretion also terminate the contract on this ground and take out any or whole amount of the contract from the scope of the contractor. In the event of failure of contractor to deploy necessary and sufficient T&P/ IMTEs to maintain work progress , BHEL will be at liberty to arrange the same at the risk & cost of contractor including transportation cost of same from any of BHEL site/ other agency & charges as applicable shall be deducted from contractor's RA bill. Decision of BHEL in this regard will be final & binding on contractor.	
34.4	Following Major T&Ps to be arranged by contractor within the indicated time	
34.4.1	Major T&P items	Broad Mobilizing time from date of start of work
34.4.2	Deleted	
34.4.3	One complete set of arrangement for Sheet pile installation including crane, vibro hammer, DG set etc and Steel Sheet Pile (this will be required if excavation is carried out with provision of sheet pile)	Within 15 days
34.4.4	1 no. TRX of Escorts group or equivalent (12/ 14 T cap)	As per site requirement.
34.4.5	2 nos. welding rectifier	As per site requirement.
34.4.6	1 no. trailer – 15T	As per site requirement.

34.4.7	Deleted	
34.4.8	Deleted	
34.4.9	Deleted	
34.4.1 0	4 Nos. hydraulic excavator / Poclain (2 nos long boom and 2 nos normal boom length)	1 st – before start of work 2 nd - Within 7 days from start of work. Bal 2 nos – As per site requirement
34.4.1 1	1 No. JCB / Pay Loader	1 st –before start of work
34.4.1 2	6 nos. transit mixer (4.5/5/6 M3 capacity)	1 st – before start of work 2 nd - Within 7 days from start of work. Balance 4 nos – As per site requirement.
34.4.1 3	Deleted	
34.4.1 4	2 nos. concrete pump (1 nos 90cum/ hr min capacity & lift 70M and 2 nd 60 cum / hr min.)	1 nos within 15 days 2 nd as per site requirement
34.4.1 5	1 no. Concrete cutting power tools (DD2E of HILTI/BOSCH make)	Deleted
34.4.1 6	1 no. Concrete core Cutting machine for drilling in concrete upto 300 mm dia alongwith diamond bits	Deleted
34.4.1 7	2 nos. Dredging pump 32 HP (diesel/ electric)	1 no within 15 days 2 nd as per site requirement
34.4.1 8	One no. 10 HP submersible mono-block electric pump (KOS-1040+ of Kirloskar or equivalent),	Within 30 days.
34.4.1 9	1 nos. self priming dewatering pump 2 HP (diesel/ electric)	Within 30 days.
34.4.2 0	2 nos. curing pump – 1.5 /2 HP (pump for curing at heights)	Within 30 days.
34.4.2 1	1 no. dozer.	As per site requirement
34.4.2 2	4 nos. dumper	2 nos – before start of work Balance 2 nos – As per site requirement.
34.4.2 3	Deleted	
34.4.2 4	2 nos. reinforcement cutting machine	Within 30 days.
34.4.2 5	2 nos reinforcement bending machine	Within 30 days
34.4.2 6	Deleted	
34.4.2 7	Deleted	
34.4.2 8	1 no. compression testing machine (200 T cap)	Deleted
34.4.2 9	2 nos. electric winch with building hoist	Within 90 days.
34.4.3 0	1 no total station with adequate arrangement for Surveyors	Within 7 days.

34.4.3 1	1 no. auto level & staff + 2 nos as required	Within 15 days.
34.4.3 2	30 nos concrete cube moulds	Within 30 days.
34.4.3 3	Adequate no. of small trucks 2T/5T for movement within site	As per requirement.
34.4.3 4	Two nos drinking water tank – 5000 lit.	Within 30 days.
34.4.3 5	1 nos truck mounted water tank (minimum 5000 lit) capacity with sprinkler arrangement.	Deleted
34.4.3 6	1 No. 125KVA Electric Generator	As per requirement.
34.4.3 7	6 Nos. Concrete vibrator with adequate needle (3Nos. diesel driven +3Nos. electric driven)	2nos – before start of work 4 Nos balance within 30 Days.
34.4.3 8	Portable fire extinguishers as below: Soda acid – 10 sets. Dry chemical powder – 10 sets CO2 – 5 sets. Water & sand bucket (4 buckets in one stand) – 5 sets. Fire hose with nozzle (50 M length) – 4 sets.	Within 40 days
34.5	<p>T&P shown in the above mentioned list are tentative based on planned progress requirement. Actual Mobilization schedule, based on front availability, drawings, construction schedule and material availability at site is to be reviewed and mutually agreed with BHEL site periodically from time to time for mobilization of major T&Ps, and the same have to be adhered to. No change will be permitted without written approval of Construction Manager, BHEL site.</p> <p>Further requirement will be reviewed time to time at site and contractor will provide additional T&P/equipment's to ensure completion of entire work within schedule time without any financial implication to BHEL. All other T&Ps shall be provided by the contractor without any extra cost to BHEL. Vendor will give advance intimation & certification regarding capacity etc prior to dispatch of heavy equipments.</p>	
34.6	All T&P and all IMTEs, which are required for successful and timely execution of the work covered within the scope of this tender, shall be arranged and provided by the contractor at his own cost in working condition.	
34.7	In the event of non mobilisation of any T&P by the successful bidder and as a result progress of work suffered, BHEL reserves the right to deduct suitable amount from the dues of the bidder, with assigning reasons thereof at the following rates	
Major T&P items	Recovery rates	
34.7.1		
34.7.2	75 T capacity crawler crane for pre-assembly with adequate plates for movement	
34.7.3	crawler cranes 40/45 T capacity crawler/tyre mounted crane	
34.7.4	4 nos. TRX of Escorts group or equivalent (10/ 12 T cap	

34.7.5	Magnetic base drill machine (All Cut)	USD 70/- per week or part thereof
34.7.6	submerged arch welding machine	USD 70/- per week or part thereof
34.7.7	MIG machine	USD 50/- per week or part thereof
34.7.8	welding rectifier	USD 15/- per week or part thereof
34.7.9	Trailor – 15T	USD 150/- per week or part thereof
34.7.10	Trailor – 30T	USD 170/- per week or part thereof
34.7.11	Power driven HSFG bolt tightening m/c	USD 70/- per week or part thereof
34.7.12	Torque tightening m/c. (2 no. Capacity up to 30 dia HSFG bolt tightening)	USD 70/- per week or part thereof
34.7.13	Jack hammers/pavement breakers	USD 70/- per week or part thereof
34.7.14	Power winch – 3T	USD 30/- per week or part thereof
34.7.15	Power winch – 5T	USD 50/- per week or part thereof
34.7.16	ultra-sonography testing machine for structural work.	USD 50/- per week or part thereof
34.7.17	Hydraulic excavator / Poclain	USD 800/- per week or part thereof
34.7.18	JCB / Pay Loader	USD 800/- per week or part thereof
34.7.19	Deleted	
34.7.20	Deleted	
34.7.21	Transit mixer (4.5/5/6 M3 capacity), peak period 4 nos. transit mixer	USD 100/- per week or part thereof
34.7.22	Truck mounted concrete mixer cum pump along with placing boom minimum 40 m high	USD 300/- per week or part thereof
34.7.23	concrete pump (20 cum/ hr min capacity & lift 70M)	USD 300/- per week or part thereof
34.7.24	Concrete cutting power tools (DD2E of HILTI/BOSCH make)	USD 70/- per week or part thereof
34.7.25	Concrete core Cutting machine for drilling in concrete upto 75mm dia along with diamond bits	USD 70/- per week or part thereof
34.7.26	self-priming dewatering pump 5 HP (diesel/ electric)	USD 25/- per week or part thereof
34.7.27	10 HP submersible mono-block electric pump (KOS-1040+ of Kirloskar or equivalent),	USD 25/- per week or part thereof
34.7.28	self-priming dewatering pump 2 HP (diesel/ electric)	USD 25/- per week or part thereof
34.7.29	curing pump – 1.5 /2 HP (pump for curing at heights)	USD 25/- per week or part thereof

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34.7.3 0	dozer	USD 625/- per week or part thereof
34.7.3 1	dumper	USD 70/- per week or part thereof
34.7.3 2	reinforcement bending machine	USD 70/- per week or part thereof
34.7.3 3	reinforcement cutting machine	USD 70/- per week or part thereof
34.7.3 4	power driven earth rammer	USD 10/- per week or part thereof
34.7.3 5	vibromax (earth compacter)	USD 625/- per week or part thereof
34.7.3 6	Vibro compactor/ plate compactor – drum width 750mm	USD 300/- per week or part thereof
34.7.3 7	compression testing machine (200 T cap)	USD 50/- per week or part thereof
34.7.3 9	Electric winch with building hoist	USD 25/- per week or part thereof
34.7.4 0	Total station with adequate arrangement for Surveyors	USD 70/- per week or part thereof
34.7.4 1	Auto level & staff + 1 nos if required	USD 70/- per week or part thereof
34.7.4 2	drinking water tank – 5000 lit.	USD 70/- per week or part thereof
34.7.4 3	truck mounted water tank (minimum 5000 lit) capacity with sprinkler arrangement.	USD 140/- per week or part thereof
34.7.4 4	Concrete vibrator with adequate needle (3 Nos. diesel driven + 6 Nos. electric driven)	USD 50/- per week or part theirof
34.7.4 5	Mobile lighting mast with DG set attachment (8 mtrs. High & above capacity. (These towers shall be of 30 ft. height, noiseless, have 4x1000W metal halide lights, with Fuel tank capacity of 12 hrs. duty cycles, completed with panels, self-starter for DG set, manual winch etc.)	USD 70/- per week or part theirof
34.7.4 6	Any other instrument	As per discretion of the BHEL engineer
35.0	T&P TO BE PROVIDED BY BHEL	
35.1	Not Applicable	
36.0	OTHER TERMS	
39.1	All other term & conditions of this specification shall be governed by the pertinent provisions of GCC and other volumes of this tender, as applicable.	

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ANNEXURE – A LIST OF EQUIPMENTS FOR CIVIL SITE LABORATORY CONCRETE TESTING EQUIPMENT			
SL NO.	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT
1	Concrete Compressive test	Digital Compressive Testing Machine with 2000 KN capacity.	2000KN capacity
2	Concrete Cube casting	Concrete testing Mould	Minimum 125 sets desired considering major concreting activity.
3	Workability of concrete	Slump cone	Standard, at least 04 Nos.
4	Course aggregate Sieve analysis (Concrete & Road Works)	Sieve set	450mm dia GI Frames Size: 125 mm, 90 mm, 75 mm, 63 mm, 53 mm, 40 mm, 20 mm, 16 mm, 12.5 mm, 10 mm, 4.75 mm, Pan and cover
5	Fine aggregate sieve analysis	Sieve set	Minimum 200 mm dia Brass sieves; Size 4.75 mm, 2.36 mm, 1.18 mm 600 micron, 300 micron, 150 micron, 75 micron, 75 micron, Pan and cover
Soil Testing Equipment (Levelling & Grading)			
1	Compaction of filling test	Core cutter apparatus	Rammer, 6 Nos. of standard core cutter mould, dolly
2	Proctor density test	Standard proctor Compaction apparatus	Standard
3	Moisture Content	Rapid moisture meter	Standard, at least 02 Nos.
Process Control Accessories			
1	Electronic balance	1 Nos.	600gx0.01g, 10g and 10 kg
2	Physical balance	5 kg capacity	Weights up to 5 kg
3	Thermometer	Temperature range 0° C to 150° C. 2 Nos.	Digital
4	Measuring jars	2 Nos. set of each size	100ml, 200ml, 500ml & 1000 ml
5	Spatula	2 Nos. each size	100mm & 200 mm with long blade wooden handle
6	Venire calipers	2 Nos. each	12" and 6" Sizes
7	Digital pH meter	01 Nos.	.01 mm least count
8	Digital micrometer	01 Nos.	0.01 mm least count
9	GI tray	02 Nos. each	600x450x50mm, 450x300x40mm, 300x250x40mm
10	Rebound hammer test	01 Nos.	Digital Rebound hammer
11	Screw Gauge	02 Nos.	0.1 mm-10mm, Least count 0.05

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ANNEXURE B

HSE REQUIREMENTS-MAITREE PROJECT

MANPOWER AND INFRASTRUCTURE

<u>SL NO.</u>	<u>ITEM</u>	<u>REQUIREMENTS</u>	<u>REMARKS</u>
1	HSE Manager	1 No. if no of HSE officers more than 1.	CV to be vetted by customer. Candidate should have <ul style="list-style-type: none"> • Degree/ diploma in Engg/Technology • Degree/ Diploma in H&S, • min 5 years' experience in field of safety incldg min 3 years experience in construction
2	Shift HSE Officer	Min 1 for every 500 workers or part thereof. Any sub-contractors with more than 20 workers must have a HSE officer. Each major work area must have a dedicated shift HSE officer as advised by BHEL HSE manager/officer.	Candidate should have <ul style="list-style-type: none"> • Degree/ diploma in Engg/Technology • Degree/ Diploma in H&S, min 2 years' experience in field of safety for Degree holder in Engg or Min 5 years with Diploma holder in Engg
3	Shift HSE stewards	Min 1 Steward for every 100 workers or part thereof. Deployment to be approved by BHEL HSE manager.	Candidate should have passed HSC(12 th standard) and attended a certificate course on construction safety or allied subjects
4	First aid box	1 in each office and major work area/floor	Items as per clause 76(2) of Bangladesh labour Rules and clause7.4.5.3 of HSE plan for sub-contractors
5	Shift First aider	1 for each 150 workers Minor contractors may have tie up with major contractor with permission of BHEL HSE manager in this regard.	The candidate must have passed HSC and have a certificate from Bangladesh Red-cross society or as recognized by Govt. (Pl refer 7.4.5.2 of HSE Plan for sub-contractors)
6	Ambulance	Round the clock experienced paramedical personnel with first aid facility & one ambulance including driver, fuel etc. shall be arranged/provided by you/other vendor . The above facilities will be shared by various BHEL	On running cost sharing basis with other sub-contractors Modalities to be worked out by site team.

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		contractors working at site on chargeable basis to the providing agency (actual cost distributed among the various vendors present at site availing the facility on a prorate basis). The subject facility will be strengthened as per the requirement during peak work progress at site, by other vendor. Individual vendor may co-ordinate with the providing agency in this regard.	
7	Sick room	Shall be available at site, being provided by other agency.	Pl refer 7.4.5.1 of HSE Plan for sub-contractors for details. Running cost & construction cost to be shared among all sub-contractors Modalities to be worked out by site team
8	Emergency vehicle	To be available in all shifts of work	Must be a 4-wheeler.
10	Walky-talky	If contractor engaged in height works- 1 No.	
11	Binoculars	If contractor engaged in height works- 1 No.	
12	Height Rescue-kit	If contractor engaged in height works- 1 No.	
15	HSE related instruments	<ol style="list-style-type: none"> 1. Lux meter- 1no, 2. ELCB Tester-1 no.- 3. Earth Megger- 1 No. 4. Anemometer-1 no- 5. Alcohol Breath Analyser-1 	To be made available to BHEL as and when demanded or to be shared with other sub-contractors as instructed by BHEL

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Special Notes:

1. The following welfare measures, in addition to those covered above, are to be taken at the site :
 - a. Adequate Drinking Water
 - b. Adequate no of toilets and washing area
 - c. Canteen
 - d. Rest Shed
 - e. Hygienic Accommodation (Labour Colony) and allied facilities
2. Water sprinkling arrangement for suppression of dust to be made
3. A Safety Park will be put up with participation by all major contractors
4. It must be ensured that no contaminated water including those discharged from Toilets, Canteen, Office and Labour Colony shall be discharged to under-ground water table and river water
5. AS THIS SITE IS LOACTED IN A CYCLONE-PRONE AREA, ALL BUILDINGS AND SHED MUST BE CONSTRUCTED STRONG ENOUGH TO WITHSTAND ADVERSE WEATHER CONDITION
6. FURTHER TO POINT#6, MASS EVACUATION OF PEOPLE FROM SITE MAY BE CALLED FOR, IF ADVISED SO, BY GOVT AGENCIES. AS IT WILL BE EXTREMELY DIFFICULT TO FIND A REST SHELTER FOR A FEW THOUSAND PEOPLE, IT IS FURTHER EMPHASISED THAT ACCOMMODATION MUST BE STRONG ENOUGH TO SURVIVE SUCH EXTREME WEATHER CONDITION.
7. BHEL shall be provided drawing for labour accommodation and contractor shall be constructed as per BHEL drawing with contractor own contribution/expenses.
8. It is assumed that First aider will be sitting in a porta-cabin.

VOLUME-III
PRICE SCHEDULE, REV-01

Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.

Tender No: PSER: SITE: KLN-C2019:19

PREAMBLE

01	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully before filling in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender and other tender sections as applicable and shall have precedence over any contrary statement mentioned anywhere in this document.
02	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings enclosed with the tender are only preliminary and for tender purposes and giving some idea of the work involved. The work is to be executed as per drawings & documents, which shall be furnished during execution.
03	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
04	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc. equipment, strengthening of roads/culverts/bridges etc. including arranging all clearances etc. required for carrying out different activities & tests, materials, levies, taxes (except service tax), transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the complete tender document and this schedule.
05	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains, within plus minus thirty percent ($\pm 30\%$) of the awarded price as per LOI.
06	Prior written approval of BHEL shall be sought by the contractor in case quantity variation of any item crosses +50% (plus fifty percent) limit during execution and approval to be obtained before execution of further quantity for this item.
07	In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based contract, possibility of variation of quantity/ addition/deletion of items can not be ruled out. Under such circumstances, after execution of work, if it is observed that standing as L-1 is changed based on actual quantity executed, the bidder shall give suitable rebate to maintain your standing as L-1. Since this aspect can be assessed at the end of execution, necessary adjustment will be effected at the end of execution in final bill. This condition shall not be applicable where the tender is finalised through Reverse Auction.
08	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against unit rate items and/ or other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.
09	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing , clearing of old structures and leveling etc. including fixing of grid pillars, benchmarks etc. required for commencement of site activities. No separate payment will be made towards the same. However, if separate rate for such item is available in the rate schedule, the same shall be considered.
10	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English language.
11	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
12	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
13	No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.
14	Bidders are not allowed to alter the Price Schedule format including item description, quantity etc. and the offer is liable for rejection if the bidders submit their prices in Price Schedules modified by them. BHEL reserves the right to reject the offers of bidders who submit offers in Price Formats which are modified/ altered by them. Also putting any comments instead of rates/price in the designated column of the rate schedule shall make the offer liable for rejection.
15	Bidders to note that for Civil & Structural packages, against a particular item against a ST No. appearing in more than one schedule of the BOQ, same rate must be quoted in all schedules for that particular items with same descriptions. If by error, different rates are quoted in different schedules for same ST No. (i.e. item with same description), then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate, if the bidder becomes L-1."
16	For Lumpsum Service Contract : The items/components indicated in the tender is indicative and may vary to any extent. No compensation shall be payable in case of any variation in the items/components listed in the bill of quantities if the executed weight remains within the variation limit. However, in case of deletion of any item or addition of new items over and above the items listed or variation of existing quantity beyond variation limit specified, adjustment (i.e. Payment or recovery as the case may be) shall be done on pro-rata basis based on the Rate per MT worked out from the quoted lump-sum Price and the total weight of components listed /indicated in price schedule plus 15% weight variation limit.

VOLUME-III PRICE SCHEDULE, REV-01	
Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.	
Tender No: PSER: SITE: KLN-C2019:19	
PREAMBLE	
17	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
18	In case of tender for Civil and/or Structural works, if the Non-schedule items are not quoted by the bidder, it will be treated at par with rate of corresponding item of CPWD/PWD/DSR/BPWD schedule as prescribed in the tender/BOQ cum Rate Schedule.
19	No interest, whatsoever, shall be payable by BHEL on the security deposit, any bank guarantee submitted or any amount due to successful bidder/contractor.
20	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
21	Bidder's Total price shall be considered for evaluation unless stated otherwise.
22	In case of BOP packages, if Bidder does not quote/indicate the price for freight charges against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quoted price against each item keeping the total quoted price unaltered.

VOLUME-III
PRICE SCHEDULE, REV-01

Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.

Tender No: PSER: SITE: KLN-C2019:19

SCH-1 : TOTAL PRICE

SL NO	DESCRIPTION	PRICE SCHEDULE REF	TOTAL QUOTED PRICE (IN USD)
1.0	Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.	SCH 2 - BREAK UP OF TOTAL PRICE	<u>IN FIGURES:-</u>
			<u>IN WORDS:-</u>
2.0	NON-SCHEDULE ITEM Quote % above or % below or at par for items not covered SCH 3 & 4 of Price Schedule . The rate shall be derived from Schedule of Rates 2014, PWD, Govt. of Bangladesh		
1a)	Rate of complete item		_____ % above/ _____ % below/ at par of BPWD Rate Schedule 2014
1b)	Rate of supply of material at site only		_____ % above/ _____ % below/ at par of BPWD Rate Schedule 2014
1c)	Rate for execution complete excluding supply of materials.		_____ % above/ _____ % below/ at par of BPWD Rate Schedule 2014

NOTE

1.0	Bidder shall quote total price for total price of SCH-1- Part only at sl no 1 above. All other amounts/ rates of each item of works in respective schedules/ parts will be derived based on allocated percentages. As such, any uncalled figure/ amount noted at any other place/ schedule of Volume-III will not be recknoed & will stand null & void.
2.0	Bidder to note that total price at sl no 1.0 above shall be considered for evaluation & awarding. As such grand total price should be complete in all respect for the full scope defined and considering all terms and conditions.
3.0	Bidder to note that SCH-2 is Break-up of Total Price.
3.1	Bidder to note that SCH-3 covers SERVICE of respective items, unless specified otherwise in the description of items.

VOLUME-III
PRICE SCHEDULE, REV-01

Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.

Tender No: PSER: SITE: KLN-C2019:19

SCH-1 : TOTAL PRICE

3.2	Bidder to note that SCH-4 is Break-up of SUPPLY unless specified otherwise in the description of items.
4.0	Bidder's quoted total price at Sl. no 1 above respectively shall be apportioned into amount of various items of works based on allocated percentages against respective item, in respective schedules/ parts. As such, bidder shall not indicate/ quote any amount/ rate in these schedules/ parts and any amount/ rate quoted against any item shall not be taken into cognizance/ account and offer may be liable for rejection.
5.0	Based on the itemwise percentage allocations, the amount for the individual items of the Bill of Quantity shall be arrived at. The rates of individual items shall be derived from the amount against each items after rounded off .
6.0	Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per Sl No.7 below.
7.0	Unit rates of each item of works of respective schedules/ parts will be derived by dividing derived amount by corresponding quantities. In deriving the unit rates of each item in this manner, figures only upto 2 decimal places will be taken into account. Any adjustment, if required, due to such methodology, will be effected in final bill.
8.0	Successful bidder shall draw a schedule of quantities of various items of work of SCH-4 and obtain BHEL's approval/ clearance in writing before procurement, supply, etc.
9.0	Any item as per scope of work, if not included in the price quoted above and shown separately will not be taken cognizance of and the offer shall be liable for rejection.
10.0	Price format shall not be changed by bidder in any case and it may lead to cancellation of their offer.
11.0	The quantity of items may vary during execution mainly due to actual requirement etc. The unit rates work out from the overall amount quoted & accepted by BHEL shall be considered and no separate unit rates shall be allowed. Unit rates shall be valid throughout the contract period.
12.0	For payment of non schedule items, the rate shall be derived from Schedule of Rates 2014, PWD, Govt. of Bangladesh.

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SCH-2 : BREAK UP OF TOTAL PRICE SCHEDULE

SL NO	DESCRIPTION	PRICE SCHEDULE REF	WEIGHTAGE
1.0	SERVICE	SCH 3 -SERVICE	98.445784%
2.0	SUPPLY	SCH 4-SUPPLY	1.554216%
	TOTAL		100.000000%

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SCH-3: SERVICE

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
	100 EARTH WORK			
	Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing, relevant laws of Bangladesh, relevant BS (or equivalent international standard) Standards approved by BIFPCL/BHEL and as directed by engineer- in-charge for the following.			
A101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 km, spreading/levelling of disposed materials etc all complete for following depths below ground level. This item is only applicable for excavation by using of Sheet Pile . Payment for Sheet Pile shall be paid as per Item No. 2516. Measurement shall be done on actual volume as per approved profile			
a	Depth from ground level but not exceeding 2 m	CUM	7670	0.551092%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	7670	0.688049%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	5620	0.628397%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	4220	0.590269%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	4220	0.708682%
f	Depth exceeding 10 m but not exceeding 15 m	CUM	3150	0.608006%

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SCH-3: SERVICE

ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
B101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 km, spreading/levelling of disposed materials etc all complete for following depths below ground level. This item is applicable in all the excavation areas except excavation by using of Sheet Pile . Measurement shall be done on actual volume as per approved profile.			
a	Depth from ground level but not exceeding 2 m	CUM	15340	1.102183%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	15340	1.376099%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	11240	1.256793%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	8440	1.180538%
e	Depth exceeding 8 m but not exceeding 10 m	CUM	8440	1.417364%
f	Depth exceeding 10 m but not exceeding 15 m	CUM	6300	1.216013%
A107	Earthwork in back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected approved materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.			
a	Each layer compacted so as to achieve at least 98% maximum dry density as per ASTM D-1557.	CUM	400	0.032822%
e	Each layer compacted so as to achieve at least 85% relative density as per ASTMD-4253 & ASTMD-4254	CUM	45570	3.351714%

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A108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected earth directly from excavation within a lead upto 1 Km and compacted as specified including watering, ramming/ compaction by manual/mechanical means, dressing etc all complete for the following.			
e	Each layer compacted so as to achieve at least 85% relative density as per ASTMD-4253 & ASTMD-4254	CUM	22785	0.881520%
A109	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500 m or part thereof beyond an initial lead of 1 Km.	CUM	400	0.002891%
C 200	CONCRETE WORKS			
	Placing of concrete work including cost of labour, materials (unless otherwise specified in BOQ/ contract specification) and equipment for handling, transportation, placing, vibrating and curing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like transit mixer, concrete pump etc, preparation of scheme for concreting, getting it approved by engineer, maintaining and submitting records of concreting. complete as per drawing, specifications, relevant laws of Bangladesh, manufacturer's recommendation, relevant BS standards/equivalent international standards and as approved by BIFPCL/ BHEL and as per direction of engineer in charge for the following. (RMC SHALL BE PROVIDED BY BHEL AT BATCHING PLANT IN PROJECT PREMISES. TRANSPORTATION FROM THE BATCHING PLANT UP TO THE POURING POINT SHALL BE UNDER THE SCOPE OF CONTRACTOR)			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
C203	Concrete of grade C12/15 as per BS EN-206 and BS 8500 or equivalent international standard (with 40 mm graded aggregate) as lean concrete, leveling course, mud mat, under and around foundation/floors at any depth below finished floor level etc.	CUM	201	0.217825%
C204	Concrete under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.			
b	Grade C16/20 as per BS EN-206 and BS 8500 or equivalent international standard	CUM	10	0.011220%
C205	Design Mix cement concrete conforming to BS EN-206 and BS 8500 or equivalent international standard for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to BS EN 934 (latest) or equivalent international standard to achieve required slump in concrete all complete as per specification & drawing for the following.			
c	Grade C30/37	CUM	590	0.774839%
C206	Design Mix cement concrete conforming to BS EN-206 and BS 8500 or equivalent international standard for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at all level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to BS EN 934 (latest) or equivalent international standard to achieve required slump in concrete all complete as per specification & drawing for the following.			
c	Grade C30/37	CUM	1310	1.727089%

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C211	Providing and encasing of structural steel member with concrete as per BS EN-206 and BS 8500 or equivalent International code using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)			
b	C20/25 grade	CUM	10	0.011343%
C212	Scread concrete conforming to relevant BS code or equivalent international code with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.			
a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)	CUM	60	0.065022%
C213	Providing and laying Design Mix cement concrete as per BS 8500 and BS EN 206 or equivalent International code for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias including concrete jali, etc. at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transporting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc. complete with graded aggregate and as per specification and drawing for following grades.			
c	C 40/50 grade	CUM	100	0.170698%

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C214	Design Mix cement concrete as per BS 8500 and BS EN 206 or equivalent International code for reinforced concrete works using graded aggregate for Concrete in water retaining/ conveying structures including addition of suitable plasticizer cum waterproofing cement additives confirming to BS 934 or equivalent international standard to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per relevant BS code or equivalent international code and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.			
b	C 30/37 grade	CUM	4500	7.469028%
215	Dismantling concrete work for all types of structures at all levels including stacking of serviceable material to a lead of 500 m and disposal of unserviceable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.			
a	Plain cement concrete of all grades	CUM	140	0.111364%
b	Reinforced cement concrete of all grades	CUM	140	0.169635%
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement.	CUDM	760	0.033927%
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	220	0.000748%

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218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	220	0.046579%
	300 FORM WORKS			
	Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering complete including pockets, rubbing the fairfaced concrete with carborundum stone to make smooth finish etc. complete as per drawing, specifications, relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL and as per direction of engineer in charge for the following.			
A301	Fairface form work with good quality water proof ply wood (Plywood lining for form shall be of timber, which is resin bonded and water repellent of minimum 12 mm thickness and smooth surface or good quality steel shutter plate with angle stiffner) below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc including providing 25mmx25mm chamfer at all exterior corners.	SQM	10458	4.588493%
A302	Fairface form work with good quality water proof ply wood (Plywood lining for form shall be of timber, which is resin bonded and water repellent) of minimum 12 mm thickness and smooth surface or good quality steel shutter plate with angle stiffner) above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies etc. for all heights including providing 25mmx25mm chamfer at all exterior corners.	SQM	7000	3.404598%

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A304	Providing, fixing and removing formwork in block-outs /pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.			
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	100	0.078057%
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	80	0.072650%
305	Extra over item no. 301 and 302 for curved formwork for foundations, footings, beams, walls, trenches, domes, arches etc as per specification			
a	Extra for curve shuttering for item no. A301	SQM	200	0.014880%
<p>400 REINFORCEMENT</p>				
	Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL drawings and as directed by engineer - in - charge for the following			
402	Straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of grade B500B confirming to BS 4449:2005+A:2009 including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (REINFORCEMENT STEEL SHALL BE PROVIDED BY BHEL AS PER TCC)	MT	977	6.365148%
<p>500 WATER PROOFING WORKS</p>				

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
	Water proofing works including all labour, material, (unless otherwise specified in BOQ/contract specification) equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings, relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge.			
A509	Providing and applying two coats of bitumen of suitable grade as per relevant BS or equivalent international code @ 1.7kg/sqm with 1% antistripping compound in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	4600	1.022825%
512	Anti termite chemical treatment of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to relevant BS code or equivalent international code all complete.	SQM	1417	0.157838%
<p>600 JOINTS AND FILLERS</p>				
	Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings, relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge.			
601	Supplying & installation of bitumen impregnated fibre board confirming to relevant BS code or equivalent international code as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.			
c	25 mm wide joints	SQM	2950	2.863319%
602	Providing and applying polysulphide based sealant conforming to relevant BS code or equivalent international code in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete (The sealant should have VOC content limited to 250 grams per litre) for following size grooves:			
c	25mmX25mm	RM	88	0.049834%
606	Providing and fixing PVC water stops in joints conforming to relevant BS code or equivalent international code all complete for the following:			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
b	230 mm wide and 8 mm thick	RM	1110	0.372814%
700 MS EMBEDMENTS				
	Embedments including all labour, material (unless otherwise specified in BOQ/specification), equipment, transportation, handling etc. at any level as per specification, drawings, relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge.			
701	Fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	22	0.479571%
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.			
a	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	2	0.027909%
b	Mild steel foundation bolt assembly conforming to relevant BS or equivalent international code in concrete along with nuts, lock nuts (as per relevant BS or equivalent international code), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	4	0.053812%
704	Fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.			
a	MS pipes of all diameters	Quintal	1	0.001156%
b	PVC pipes / conduits of all diameters	Quintal	1	0.005981%
c	UPVC pipes / conduits of all diameters	Quintal	1	0.005790%
800 GROUTING				

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	Grouting including all labour, material (unless otherwise specified in BOQ/specification), equipment, roughening surface, cleaning, ramming, curing etc. at any level unless otherwise specified as per specification, drawings, relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge.			
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	210	0.119637%
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete.	CUM	10	0.238649%
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	2	0.044784%

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804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with Combextra GP-1 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	1	0.063409%
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Combextra GP-2 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	1	0.063409%
900 DOORS, WINDOWS, VENTILATORS, LOUVERS				
	Doors (including master key system), windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/specification), equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings, relevant laws of Bangladesh, relevant BS Standards or Bangladesh National building code or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge.			
901	Providing and fixing wooden frame conforming to relevant BS standard or Bangladesh National Building Code or equivalent International standard made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects including sand paper smoothening, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (finish painting/polishing paid separately)	CUM	4	0.585991%

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
903A	Providing, fitting and fixing solid core flush door shutter as per relevant BS standard or Bangladesh National Building Code or equivalent International standard, 35mm thick pre-laminated homogenous particle board bonded with BWP type phenolformaldihyde synthetic resin, partical board core conforming to relevant BS standard or Bangladesh National Building Code or equivalent International standard, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anoidised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with prelaminated faces and teak wood edges.	SQM	20	0.039216%
904	Fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete as per specification.	SQM	29	0.015227%

<p style="text-align: center;">VOLUME-III PRICE SCHEDULE, REV-01</p>					
<p style="text-align: center;">Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.</p>					
<p style="text-align: center;">Tender No: PSER: SITE: KLN-C2019:19</p>					
<p style="text-align: center;">SCH-3: SERVICE</p>					
ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1	
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, doors, windows, ventilators, partitions, railing, skylight frames etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to relevant BS standard or equivalent international standard anodised and electro color dyed to required shade according to relevant BS standard or equivalent international standard (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalllic protection etc.including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	1800	1.195351%	
911	Providing and fixing of door closers as per relevant BS code or equivalent international code of approved make & quality all complete of following type :				
a	Over head hydraulic door closures	Each	11	0.007852%	
A912	Fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars, paintings etc all complete as per specifications.	Kg	100	0.002551%	

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913	Fixing in position rolling shutter of hot rolled double dipped galvanised steel double walled hollow sections interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per relevant BS code or equivalent international code and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely riveted with stiffening angles.			
a	Hand Operated	SQM	40	0.044165%
b	Mechanically Operated	SQM	10	0.013231%
c	Electrically operated including Hand crank with continuous chain reel for emergency operation	SQM	40	0.056443%
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.			
c	5.5 mm thick clear float glass	SQM	10	0.013877%
f	4 mm thick ground glass	SQM	10	0.012869%
i	Two nos. 6 mm thick clear toughened glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	119	0.408587%
1000 BRICKWORK				

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
	Brickwork masonry including all labour, material (unless otherwise specified in BOQ/specification), equipment, transportation, handling, scaffolding etc. at all levels as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.			
c	Using burnt clay bricks as per relevant BS code or equivalent international code with crushing strength of 75 Kg/cm ²	CUM	50	0.324984%
1002A	Providing masonry work with Autoclaved Aerated Concrete (AAC) block [600 mm x 200 mm, thickness ranging from 100 mm to 200 mm, maximum thermal conductivity of 0.18 W/(mK) and conforming to Category I of BS EN 771-4] in cement mortar 1:6 (1 part cement, 6 part sand of fineness 1.1) in walls, chambers etc. at all depths, places and positions above plinth including raking out joints, curing, scaffolding etc complete (excluding plastering and painting) complete as per relevant BS or equivalent international standards, drawings, specifications, manufacturer's recommendations.	CUM	425	3.850654%
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.			

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c	Using burnt clay bricks as per relevant BS code or equivalent international code with crushing strength of 75 Kg/cm ²	CUM	175	1.253585%
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.			
c	Using burnt clay bricks as per relevant BS code or equivalent international code with crushing strength of 75 Kg/cm ²	SQM	100	0.089154%
1010	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in brick/autoclave concrete blocks/concrete including cutting, bending, fixing etc. complete.	SQM	100	0.011692%
	1100 DAMP PROOF COURSE			
	Damp proof course including all labour, material (unless otherwise specified in BOQ/specification), equipment, transportation, handling, shuttering, centering, curing etc at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1101A	Providing Damp Proof Course 40mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating conforming to BS 6398 or equivalent international code shall be applied one before & one after the DPC.	SQM	100	0.048850%
	1200 CEMENT MORTAR PLASTER			

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ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
	Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/specification), scaffolding, curing etc at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	4300	0.866540%
1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.	SQM	3950	0.557541%
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	1770	0.218229%
1208	Providing drip coarse on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	230	0.005085%
1209	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	120	0.034182%
1300 FINISHES TO CONCRETE / PLASTERED SURFACES				

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	Finishes, painting to concrete, plastered surfaces including all primer, labour, material (unless otherwise specified in BOQ/specification), equipment, surface preparation, scaffolding etc. at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1301	Two or more coats of white wash/ colour wash of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	600	0.009438%
1304B	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	1417	0.098197%
1312A	Providing and applying 2 mm thick polymer based water resistant putty (wall putty) on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	1417	0.103619%
1315	Providing and applying two or more coats of Acrylic based weather coat paint of approved brand and manufacture and required shade including one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	2220	0.252003%
	1400 FLOORING AND SKIRTING			
	Flooring and skirting at any level including base layer, labour, material (unless otherwise specified in BOQ/specification), equipments, transportation, handling, curing, polishing etc. at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			

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1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	840	0.581758%
1416	Providing and laying vitrified ceramic tiles of polished variety from reputed / approved manufacturer, complete including epoxy grout, underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following			
a	600x600x10 mm thick tiles In flooring	SQM	2425	4.468301%
b	600x600x10mm thick tiles In skirting and dado upto specific height	SQM	500	0.918323%
1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to relevant BS or equivalent international code in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per relevant BS or equivalent international code and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.			
a	20mm thick	SQM	233	0.547405%
1432	Providing and laying Epoxy screed (trowel applied minimum 5 mm thick) and epoxy seal coat in flooring/skirting of approved shade,as per relevant BS or equivalent international code and laying as per relevant BS or equivalent international code all complete.	SQM	144	0.165788%

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	1500 ROOFING / SIDE CLADDING			
	Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1501	Fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to relevant BS or equivalent international code over roof purlins for cast-in-situ roof slab as per relevant BS or equivalent international code and specification. Bare metal thickness of deck plate shall be minimum 0.7mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping, expansion joint etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ 275 gm/sqm including fixing of sheet to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant and EPDM/Neoprene washers. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking.			
a	Span Upto 1800mm	SQM	300	0.132009%
b	Span Exceeding 1800mm and upto 2500 mm	SQM	30	0.014521%

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1502	Fixing shear connectors of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant BS code or equivalent international code and specification.	QUINTA L	3	0.016168%
1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.	SQM	220	0.143012%
	1600 FALSE CEILING			
	False ceiling including all labour, material (unless otherwise specified in BOQ/specification), equipment, transportation, handling, suspension system etc at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1601A	Providing and fixing glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer. The false ceiling should have minimum noise reduction factor of 0.5. .Note: All GRG board to be used should be with minimum 50% of recycled content. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)			
a	12 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	150	0.083159%
	1700 RAIN WATER DOWN TAKE PIPES			

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	Rain water down take pipes including all labour, material (unless otherwise specified in BOQ/specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1706	Providing and fixing UPVC down take pipes of 160mm diameter- Class C as per BS 3505:1986 or equivalent international code all complete.	RM	320	0.174958%
<p>1800 MISCELLANEOUS WORKS</p>				
	Miscellaneous works including all labour, material (unless otherwise specified in BOQ/specification), equipment etc. at any level unless otherwise specified as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 230 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	250	0.761230%
A1812	Laying of earthing mats/rods of "tinned copper" or "steel rod cladded /bonded with copper" including risers, transportation from yard stores, loading, unloading, cutting to length, thermo welding/brazing, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods and thermowelding material shall be supplied by BHEL free of cost)	MT	1	0.007458%

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AA1812	Laying of earthing mats/rods/plates/flats of "Galvanized steel" or "Stainless steel" inside concrete members (pile, pile cap, pedestals, columns, slabs, beams etc.) including risers, transportation from yard stores, loading, unloading, cutting to length, welding, connection to reinforcement using connectors, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods/plates/flats, connectors shall be supplied by BHEL free of cost)	MT	2	0.016064%
1813	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	5	0.152136%
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification (excavation and backfilling only will be paid under applicable BOQ items).	EACH	2	0.025080%
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	600	0.044131%
<p>2000 FENCING AND GATES</p>				
	Fencing and gates including all labour, material (unless otherwise specified in BOQ/specification), equipment etc at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
2009	Fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	1	0.018790%

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	2100 WATER SUPPLY			
	Water supply work including men, material (unless otherwise specified in BOQ/specification), equipment etc. at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - Nominal size 1/2	EACH	16	0.015822%
2114	Providing & fixing in position UV resistant glass-fibre reinforced polyethylene water tank conforming to relevant BS or equivalent international code including making all necessary inlet & outlet pipes, fixture, ball cocks, valves, visible outside water level gauge etc all complete as per specification for following capacities . Pipes shall be paid separately under ST No. 2105A.			
b	2000 litres capacity	EACH	7	0.157811%
c	5000 litres capacity	EACH	3	0.169086%
	2200 SANITARY WORKS			
	Sanitary work including all labour, material (unless otherwise specified in BOQ/specification), equipment etc. at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			

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<p style="text-align: center;">SCH-3: SERVICE</p>				
ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
2201	Supply and fixing glazed vitreous china Wash Basin (minimum size 580x450 mm) conforming to relevant BS code or equivalent international code of approved shape with R.S. or C.I. brackets painted white, nominal size 1/2 chromium plated brass hot & cold mixing faucets with nylon washers, chromium plated brass chain with rubber plug, nominal size 1 1/4 chromium plated brass bottle trap and waste of standard pattern, nominal size 1 1/4 dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.			
a	White	EACH	16	0.077615%
2207	Supply, laying and jointing UPVC pipes conforming to BS EN 13476 or equivalent international code including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.			
c	160mm dia pipes	RM	280	0.139874%
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	5	0.014300%
<p style="text-align: center;">2300 STRUCTURAL STEEL</p>				
	Structural steel works including all labour, material (unless otherwise specified in BOQ/specification), equipments, transportation, handling etc. at any level as per relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
2320	Supply, fabrication and fixing of GI pipe hand railing of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete..	MT	2	0.260799%
2500	PILING WORK: Piling works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.			

<p style="text-align: center;">VOLUME-III PRICE SCHEDULE, REV-01</p>				
<p style="text-align: center;">Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.</p>				
<p style="text-align: center;">Tender No: PSER: SITE: KLN-C2019:19</p>				
<p style="text-align: center;">SCH-3: SERVICE</p>				
ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
2516	<p>Design, supplying, installing of sheet pile for earth protection around foundation as per accepted scheme including material, labour, equipment, consumable etc. all complete complying all safety norms and removal of sheet pile after completion of foundation work. this item to be executed after approval of execution scheme by BHEL Engineer. [mode of measurement : Area shall be calculated on the basis of exposed sheet pile area above founding level inside excavated pit]. Payment shall be made:- 30% for mobilisation, 40% after installation and 30% after removal of sheet pile.</p>	SQM	3012	28.537072%

<p style="text-align: center;">VOLUME-III PRICE SCHEDULE, REV-01</p>				
Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.				
Tender No: PSER: SITE: KLN-C2019:19				
SCH-3: SERVICE				
ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
	ADDITIONAL ITEMS:			
A-01	Filling / grouting with lean concrete to block / prevent subsoil water pressure at Raw Water Pump House, Desilting Chamber including all labours, tools and tackles, materials, temporary works, shoring, shuttering, strutting, dewatering etc complete as per direction of engineer in charge. Lean concrete shall be supplied free by BHEL at batching plant and measured and paid as per batch slip on actual production of RMC	Cum	300	0.390096%
	Deleted			
A-02	Strengthening / Modification of already installed damaged / tilted sheet pile without removing the sheet pile wherever required including realignment of sheet pile to enable execution of civil works inside including all labours, materials, tools and tackles, etc complete as per direction of engineer in charge.	SQM	400	0.694014%
A-03	Pull out of already installed sheet pile including all necessary labour, tools and tackles, scaffolding, platform, ladders, etc all complete as per direction of engineer in charge (Measurement shall be made for exposed area of sheet pile above founding level)	SQM	486	0.345680%
A-04	Removal of mud / silt from existing excavated pit in Raw water Pump House including all labours, pumps, tools and tackles, scaffolding, etc all complete as per direction of engineer in charge.	Cum	350	0.090338%

<p style="text-align: center;">VOLUME-III PRICE SCHEDULE, REV-01</p>				
Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.				
Tender No: PSER: SITE: KLN-C2019:19				
SCH-3: SERVICE				
ST. NO	DESCRIPTION OF ITEM	UNIT	QTY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
A-05	Pile head breaking, straightening emdbbedded rebars, reconstruction of short pile including welding of reinforcement, cutting of extra reinforcement, chipping of excess concrete, removal and disposal of excess pile including concrete debris, all labours, tools and tackles, necessary to make ready for execution of pile cap all complete. (Concrete and rebar required for reconstruction of short piles shall be paid separately under relevant item of this BOQ of Concrete and Reinforcement Steel)	Nos	532	0.579698%
A-06	Supply and installation 15 m High Light Mast comprising of 8 arms and 16 LED fittings each of 400 watts including all labour, materials, maintnance for the entire contract period and dismantling,removal and taking back after expiry of contract inclusive of foundation works.(pile is envisaged)	Nos	2	1.643190%
A-07	Supllying and laying 2 mm thick geotextile membrane for approved quality and origina as per manufacturer's instruction and as per approved method statement for slope protection work in excavation work Raw water Pump House and Desilting Chmaber including all labour material, tools and takcles, etc complete as per direction of engineer in charge	SQM	4900	0.229989%
A-08	Supplying and laying empty cement / polythene bag filled with dredged sand at berm / bencing for slope protection / prevention of erosion during excavation work in Raw Water Pump House and Desilting Chamber as per approved method statement and direction of engineer in charge.	Cum	800	0.214684%
	TOTAL			98.445784%

VOLUME-III
PRICE SCHEDULE, REV-01

Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.

Tender No: PSER: SITE: KLN-C2019:19

SCH-4:SUPPLY

ST. NO	DESCRIPTION OF ITEM	UNIT	TOTAL QUANTITY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
	700 MS EMBEDMENTS			
	Embedments including all labour, material (unless otherwise specified in BOQ/specification), equipment, transportation, handling etc. at any level as per specification, drawings, relevant laws of Bangladesh, relevant BS Standards or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge.			
S701	Supply of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	22	1.1189720%
S704	Supplying of following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.			
a	MS pipes of all diameters	Quintal	1	0.0065490%
b	PVC pipes / conduits of all diameters	Quintal	1	0.0338910%
c	UPVC pipes / conduits of all diameters	Quintal	1	0.0328100%
	S900 DOORS, WINDOWS, VENTILATORS, LOUVERS			
	Doors (including master key system), windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/specification), equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings, relevant laws of Bangladesh, relevant BS Standards or Bangladesh National building code or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge.			

VOLUME-III
PRICE SCHEDULE, REV-01

Package#10E:Civil, structural & architectural works for Raw water Pump House ,Desilting Chamber,RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.

Tender No: PSER: SITE: KLN-C2019:19

SCH-4:SUPPLY

ST. NO	DESCRIPTION OF ITEM	UNIT	TOTAL QUANTITY	ALLOTTED PERCENTAGE FOR AMOUNT OF EACH ITEM(Nearest to the 6 decimal points) W.R.T THE TOTAL OF QUOTED PRICE IN SCH-1
S904	Providing of single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete as per specification	SQM	29	0.0862680%
SA912	Providing of pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars, paintings etc all complete as per specifications.	Kg	100	0.0100760%
S913	Providing of rolling shutter of hot rolled double dipped galvanised steel double walled hollow sections interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per relevant BS code or equivalent international code and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely riveted with stiffening angles			
a	Hand Operated	SQM	40	0.1030730%
b	Mechanically Operated	SQM	10	0.0308660%
c	Electrically operated including Hand crank with continuous chain reel for emergency operation	SQM	40	0.1317110%
	TOTAL			1.5542160%

ANNEXURE - 2**FORMAT FOR NO DEVIATION CERTIFICATE**
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector - II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.
Job	Package#10E: Civil, structural & architectural works for Raw water Pump House, Desilting Chamber, RW Elect Annexe & RW Chlorination for 2X660 MW Maitree Rampal Project, Bangladesh.
Ref	1.0 Tender no PSER:SITE:KLN-C2019:19.
	2.0 BHEL's NIT, vide reference no PSER:SITE:KLN-C2019:19 Date: 28-11-2019.
	3.0 BHEL's TCN-01, vide reference no PSER:SITE:KLN-C2019:19 Date: 05-12-2019
	4.0 BHEL's TCN-02, vide reference no PSER:SITE:KLN-C2019:19 Date: 06-12-2019
	5.0 All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted/uploaded offer/documents in accordance with tender instructions with acceptance of the terms & conditions of the tender by us and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION DJ-9/1, SECTOR-II, SALTLAKE CITY, KOLKATA - 700 091
फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 033-2339 8000/ 2339 8236