



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT:KLN-C1904:TCN-02

Date: 03-07-2018

Sub	Tender change notice (TCN) 02	
Job	PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree RampaL Project, Bangladesh	
Ref	1.0	Tender no PSER:SCT:KLN-C1904:18
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-C1904:6872 Dated 14-06-2018
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:KLN-C1904:TCN-01, Dated 28-06-2018.
	4.0	All other pertinent issues till date.

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

- 1.0 Revised **PRICE SCHEDULE VOLUME-III, R-1** is attached **superseding VOLUME-III PRICE SCHEDULE, REV-0** issued earlier along with NIT. Bidder shall quote as per this revised Volume-III, Rev-1 only
- 2.0 Revised 'No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 3.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HYEAVY ELECTRICALS LTD

DY.MGR (SCT)

Encl : As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

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

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

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 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree RampaL Project, Bangladesh	
Ref	1.0	Tender no PSER:SCT:KLN-C1904:18
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-C1904:6872 Dated 14-06-2018
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:KLN-C1904:TCN-01, Dated 28-06-2018.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:KLN-C1904:TCN-02, Dated 03-07-2018.
	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, SALLAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : (033) 2339-8000/ 2339-8231

VOLUME-III PRICE SCHEDULE, REV-1	
PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree Rampal Project, Bangladesh	
TENDER NO - PSER:SCT:KLN-C1904:18	
SL. NO.	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 fifteen percent ($\pm 15\%$) 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.
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.

VOLUME-III PRICE SCHEDULE, REV-1	
PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree Rampal Project, Bangladesh	
TENDER NO - PSER:SCT:KLN-C1904:18	
SL. NO.	PREAMBLE
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 chages against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quouted price against each item keeping the total quoted price unaltered.

**VOLUME-III
PRICE SCHEDULE, REV-1**

PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660

TENDER NO - PSER:SCT:KLN-C1904:18

SCH-1 : TOTAL PRICE

SL NO	DESCRIPTION	PRICE SCHEDULE	TOTAL QUOTED
		REF	PRICE (IN USD)
1.0	TOTAL PRICE FOR CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR INDUCED DRAFT COOLING TOWER, UNIT # 1 & 2 AS PER SCOPE OF WORK & TECHNICAL SPECIFICATION	SCH 2 - CIVIL-BREAK UP OF TOTAL PRICE	<u>IN WORDS:-</u>
2.0	NON-SCHEDULE ITEM Quote % above or % below or at par for items not covered as above of this 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 covers Service of respective items, 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 rounding 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 SI No.5 above.
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 4 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-2 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
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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PRICE SCHEDULE, REV-1**

PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree Rampal Project, Bangladesh

TENDER DOCUMENT NO - PSER:SCT:KLN-C1904:18

SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
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.			
a	Depth from ground level but not exceeding 2 m	CUM	45040	1.0939200%
b	Depth exceeding 2 m but not exceeding 4 m	CUM	47184	1.4387750%
c	Depth exceeding 4 m but not exceeding 6 m	CUM	20380	0.7754210%
d	Depth exceeding 6 m but not exceeding 8 m	CUM	900	0.0427420%
A102	Extra over ST No. 101 for dewatering of ground water by well point method as per relevant Bangladesh/BS Standards/Specifications or Equivalent International standards approved by BIFPCL/BHEL.	CUM	46112	0.6429730%
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	2380	0.0727630%

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PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree Rampal Project, Bangladesh

TENDER DOCUMENT NO - PSER:SCT:KLN-C1904:18

SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
e	Each layer compacted so as to achieve at least 85% relative density as per ASTM D-4253 & ASTM D-4254	CUM	28570	0.9528890%
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.			
a	Each layer compacted so as to achieve at least 98% maximum dry density as per ASTM D-1557.	CUM	848	0.0133400%
e	Each layer compacted so as to achieve at least 85% relative density as per ASTM D-4253 & ASTM D-4254	CUM	15260	0.2619200%
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	65400	0.1588280%
A111	Supplying and filling sand (grading limits as per specification) upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 85% relative density as per ASTM D-4253 & ASTM D-4254 including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	3060	1.2947380%
C 200	CONCRETE WORKS			

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TENDER DOCUMENT NO - PSER:SCT:KLN-C1904:18

SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
	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]			
C201	Concrete of grade C8/10 as per BS EN-206 and BS 8500 or equivalent international standard (with well graded picked jhama birck chips conforming to ASTM C33 including breaking chips and screening) as mass filling course, lean concrete, leveling course, mud mat, under and around foundation/floors at any depth below finished floor level etc.	CUM	213	0.1022730%
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	2217	1.3292360%
CC203	Concrete of grade C12/15 as per BS EN-206 and BS 8500 or equivalent international standard (with well graded picked jhama brick chips conforming to ASTM C33 including breaking chips and screening) as lean concrete, leveling course, mud mat, under and around foundation/floors at any depth below finished floor level etc.	CUM	2217	1.1963060%

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PRICE SCHEDULE, REV-1**

PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree RampaL Project, Bangladesh

TENDER DOCUMENT NO - PSER:SCT:KLN-C1904:18

SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
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	151	0.0937540%
C205	Providing and laying 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.			
a	Grade C20/25	CUM	109	0.0749220%
b	Grade C25/30	CUM	148	0.1046690%
c	Grade C30/37	CUM	7305	5.3113780%
C206	Providing and laying 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.			
b	Grade C25/30	CUM	139	0.0986900%
c	Grade C30/37	CUM	11820	8.6270160%

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ST. NO	Description	UNIT	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
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	24	0.0154200%
C212	Screed 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	751	0.4502730%
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 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.			
b	C 40/50 grade	CUM	1020	0.9036930%

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ST. NO	Description	UNIT	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
C214	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 water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives conforming 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	6843	6.3798550%
D 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 POURING POINT BUT DEVELOPMENT OF ACCESS ROAD FROM NEAREST SITE ROAD TO POURING POINT IS UNDER THE SCOPE OF CONTRACTOR)			

**VOLUME-III
PRICE SCHEDULE, REV-1**

PACKAGE 13: Civil, structural & architectural works for Induced Draft Cooling Tower, unit # 1 & 2 for 2X660 MW Maitree Rampal Project, Bangladesh

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SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
D201	Concrete of grade C8/10 as per BS EN-206 and BS 8500 or equivalent international standard (with well graded picked jhama birck chips conforming to ASTM C33 including breaking chips and screening) as mass filling course, lean concrete, leveling course, mud mat, under and around foundation/floors at any depth below finished floor level etc.	CUM	38	0.0141770%
D203	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	391	0.1821510%
DD203	Concrete of grade C12/15 as per BS EN-206 and BS 8500 or equivalent international standard (with well graded picked jhama brick chips conforming to ASTM C33 including breaking chips and screening) as lean concrete, leveling course, mud mat, under and around foundation/floors at any depth below finished floor level etc.	CUM	391	0.1639360%
D204	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	27	0.0130260%
D205	Providing and laying 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.			
a	Grade C20/25	CUM	19	0.0101480%
b	Grade C25/30	CUM	26	0.0142870%
c	Grade C30/37	CUM	1289	0.7282160%

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ST. NO	Description	UNIT	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
D206	Providing and laying 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.			
b	Grade C25/30	CUM	25	0.0137920%
c	Grade C30/37	CUM	2086	1.1829810%
D211	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	4	0.0019970%
D212	Screed 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	133	0.0619590%
D213	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 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.			

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b	C 40/50 grade	CUM	180	0.1239120%
D214	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 water retaining/conveying structures including addition of suitable plastisizer 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	1208	0.8750920%
	MISC. CONCRETE RELEATED WORKS			
215	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.			
a	Plain cement concrete of all grades	CUM	60	0.0190080%
b	Reinforced cement concrete of all grades	CUM	100	0.0482480%
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	500	0.0075560%
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	100	0.0001350%

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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	100	0.0072050%
219	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	100	0.0032380%
220	Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm.	CUM	314	0.6905600%
A222	Extra over items 203 to 213 for providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture in concrete as per detail specification of manufacturer etc. all complete and as approved by BIFPCL/BHEL.	Kg	11000	0.3928590%
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 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 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	27750	4.5468390%

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ST. NO	Description	UNIT	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
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 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	119430	21.6955050%
AA302	Fixing and alignment of formwork for fan stack (curved and inclined surfaces) above finished ground level. Formwork only shall be supplied by BHEL free of cost. All other scaffolding, staging, tying ,nailing, bolting ,caulking, transportation of formwork from site store, de-shuttering, returning the formwork back to store etc. shall be included in cost.	SQM	21000	1.3849640%
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.			
a	Upto 150 mm depth	Each	416	0.0321060%
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	310	0.0434990%
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	126	0.0334220%
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	56	0.0240420%
400	REINFORCEMENT			
	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			

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401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to Grade ASTM-Designation A615-80, grade: 40 / BST I (22/34) in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	160	3.4156330%
402	Providing, 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 SHALL BE PROVIDED BY BHEL FREE OF COST AS PER TCC)	MT	6060	13.4140430%
A405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.			
a	12mm Reinforcement bar	EACH	50	0.0050330%
b	16mm Reinforcement bar	EACH	50	0.0080410%
c	20mm Reinforcement bar	EACH	50	0.0114550%
500	WATER PROOFING WORKS			

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ST. NO	Description	UNIT	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
	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	54000	4.0800820%
600	JOINTS AND FILLERS			
	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 conforming 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.			
b	20 mm wide joints.	SQM	116	0.0291740%
c	25 mm wide joints	SQM	454	0.1497070%
d	50 mm wide joints	SQM	214	0.1273320%
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:			
a	12mm X 25mm	RM	610	0.0704170%
b	20mmX25mm	RM	750	0.1154400%
c	25mmX25mm	RM	2500	0.4809990%

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d	50mmX25mm	RM	850	0.3172160%
603	Supplying and filling in position hot applied bitumin sealing compund confirming to relevant BS code or equivalent international code including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.			
a	12mm X 25mm	RM	124	0.0018070%
b	20mmX25mm	RM	178	0.0036030%
c	25mmX25mm	RM	450	0.0109300%
d	50mmX25mm	RM	78	0.0031570%
605	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicons or approved equivalent) conforming to relevant BS code or equivalent international code including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation (The sealant should have VOC content limited to 250 grams per litre) for following size groove:			
a	25mmX25mm	RM	74	0.0124800%
b	50mmX25mm	RM	86	0.0280340%
606	Providing and fixing PVC water stops in joints conforming to relevant BS code or equivalent international code all complete for the following:			
b	230 mm wide and 8 mm thick	RM	1450	0.1655100%
c	150 mm wide and 6 mm thick	RM	3044	0.3474560%
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, relavant BS Standards or Equivalent International standards approved by BIFPCL/BHEL and as directed by engineer - in - charge			

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701	Supply, 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	4	0.0987450%
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of 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. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	2	0.0592660%
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.		0	
a	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	6	0.0284470%
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	2	0.0091410%
704	Supplying, 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	12	0.0314100%
b	PVC pipes / conduits of all diameters	Quintal	10	0.1354620%
c	UPVC pipes / conduits of all diameters	Quintal	8	0.1049160%
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:			
i	8mm Dia	Each	20	0.0003130%
ii	10mm Dia	Each	18	0.0003590%
iii	12mm Dia	Each	16	0.0003930%

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ST. NO	Description	UNIT	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
800	GROUTING			
	Grouting including all labour, material, 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	20	0.0038700%
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	4	0.0282710%
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	4	0.0861720%
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	6	0.1292580%

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1300	FINISHES TO CONCRETE / PLASTERED SURFACES			
	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, relavant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1310	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	68000	1.9267050%
	1700 RAIN WATER DOWN TAKE PIPES			
	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, relavant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			
1705	Providing and fixing UPVC down take pipes of 110mm diameter- Class C as per BS 3505:1986 or equivalent international code all complete.	RM	6320	0.8254240%
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	2000	0.3713060%
1800	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, relavant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			

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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	3480	3.6003650%
1808A	Providing and fixing PVC strips over expansion joints with minimum lap of 50mm length including fixing system etc. conforming to relevant BS code or equivalent international code all complete.	SQM	24	0.0016780%
1809	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to relevant BS code or equivalent international code, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	38	0.0178320%
1810	Providing, laying and fixing rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	12	0.3430940%
A1812	Laying of earthing mats/rods of "tinned copper" or "steel rod cladde /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/brazing material shall be supplied by BHEL free of cost)	MT	24	0.1169450%
AA1812	Laying of earthing mats/rods/plates 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/connecting using connectors, connection to reinforcement by GI wire (supply of GI wire included in the item), protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods, pates, connectors shall be supplied by BHEL free of cost)	MT	12	0.0280670%

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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	16	0.1654000%
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	16	0.0610630%
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	2500	0.0627360%
1817	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.			
b	100 mm dia	RM	1800	0.3487500%
c	150 mm dia	RM	2800	1.1053930%
d	200 mm dia	RM	800	0.5172370%
1819A	Erection of stoplog gates, sluice gates etc in CW/RW/etc Pumps with embedments required, lifting beams, special tools & plants, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, erection along with a second stage concreting to true plumb and levels. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose) (SS component shall be measured separately for payment) (supply of structural steel is in the scope of contractor only)	MT	14	0.1264370%
1820	SS component mentioned under ST No. 1819/1819A.	MT	2	0.0466660%
1821B	Erecting in position and testing / examining bolted and / or welded structural steel work for stationary/travelling screens made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning etc all complete.	MT	8	0.0695560%

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A1821B	Erecting in position and testing / examining bolted and / or welded stainless steel (AISI type Grade 316 Ti) work for stationary/travelling screens made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning etc all complete.	MT	4	0.0933330%
1829	Dismantling old existing plain/re-inforced concrete work at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto 1km all complete.	CUM	20	0.0096500%
1830	Dismantling old existing structural steel work at any level including plates, bolts, cutting rivets, welding, dismembering and stacking the dismantled materials within a lead upto 1km etc all complete.	MT	6	0.0120670%
1831	Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust supression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling).	TANK-HR	180	0.0386150%
1832	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	8	0.0250390%
2300	STRUCTURAL STEEL			
	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, relavant BS Standards or Equivalent International standards approved by BIFPCL/BHEL, specification, drawings and as directed by engineer - in - charge.			

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SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
2301	Supply, fabrication, erection and alignment of structural steel with mild steel conforming to IS2062/BSEN10025 or equivalent, pipes/chequered plate, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including 1 coat of redoxide zinc-chromate primer (one coat at shop), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating, post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete as per specification, relevant BS code or equivalent international code. Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL.			
b	For built up section composed of "rolled sections (Grade E350 BR)" or "rolled sections (Grade E350 BR) and plates (Grade E350 BR)" including stiffeners (other than coal bunker)	MT	20	0.5058690%
d	For all other items (Grade E350BR) not covered above e.g. rolled sections, pipes, chequered plate etc	MT	20	0.5311620%

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SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
2301A	Erection and alignment of structural steel with mild steel conforming to IS2062/BSEN10025 or equivalent, pipes/chequered plate, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including collection of steel from stores, minor rectification in fabricated members, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating, post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability.			
b	For built up section composed of "rolled sections (Grade E350 BR)" or "rolled sections (Grade E350 BR) and plates (Grade E350 BR)" including stiffeners (other than coal bunker)	MT	40	0.3541080%
d	For all other items (Grade E350BR) not covered above e.g. rolled sections, pipes, chequered plate etc	MT	40	0.3718130%
2302	Extra over ST NO. 2301 for preparing, blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying Zinc-epoxy primer in 1 coat of minimum 80 micron (DFT), instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete as per specification.	MT	40	0.0812770%
2305	Providing and applying one coats of epoxy high solid finish paint with minimum 80 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 160 microns including protection, cleaning, rectification of damaged primer, scaffolding etc. all complete as per specification.	MT	20	0.0119810%

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SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
2305A	Providing and applying two coats of epoxy high solid intermediate paint with minimum 80 micron total dry film thickness (DFT) of each coat (total 160 micron DFT of both the coats) and 1 coat of 2-comp polyurethane finish paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 290 microns including protection, cleaning, rectification of damaged primer, scaffolding etc. all complete as per specification.	MT	100	0.0958490%
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to relevant BS code or equivalent international code in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	2	0.0600720%
2307B	Erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to relevant BS code or equivalent international code in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	2	0.0120140%
2307A	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 900 g/sqm) conforming to relevant BS code or equivalent international code in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	2	0.0888470%

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SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
2307AB	Erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 900 g/sqm) conforming to relevant BS code or equivalent international code in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	2	0.0177690%
2309	Extra over above ST NO. 2301/2308 for finishing the steel with hot dipped galvanisation @ 900 gm/sqm over blast cleaned steel surfaces instead of painting with one coat of red oxide zinc-chromate primer all complete.	MT	2	0.0529700%
2309A	Providing and applying one coat of Epoxy high solid finish paint over galvanized surfaces (galvanization to be paid seperately) with minimum 125 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade all complete as per specification.	MT	2	0.0017970%
2309B	Providing and applying one coat of Epoxy high solid intermediate paint over galvanized surfaces (galvanization to be paid seperately) with minimum 125 micron total dry film thickness (DFT) and 1 coat of 2-Comp. polyurethane finish paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade all complete as per specification.	MT	2	0.0023960%
2309C	Extra over above ST NO. 2301 / 2308 for finishing the grating units/bolts/inserts with Cold galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with two coats of primer all complete.	MT	2	0.0353130%
2310	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per relevant BS code or equivalent international code) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	Quintal	6	0.0369150%
2310A	Ffixing in position of permanent mild steel bolts (class 4.6 as per relevant BS code or equivalent international code) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	Quintal	24	0.0295320%

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SCH-2 : CIVIL-BREAK UP OF TOTAL PRICE

ST. NO	Description	UNIT	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
2311	Providing and fixing in position of high strength structural bolts (of property class 8.8, 10.9 as per relevant BS code or equivalent international code) and high strength structural hardened and tempered nuts conforming to relevant BS code or equivalent international code with hardened and tempered washers etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	Quintal	4	0.0506230%
2311A	Fixing in position of high strength structural bolts (of property class 8.8, 10.9 as per relevant BS code or equivalent international code) and high strength structural hardened and tempered nuts conforming to relevant BS code or equivalent international code with hardened and tempered washers etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	Quintal	6	0.0151870%
2312	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	6	0.0120670%
2313	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:			
a	In erected position	MT	6	0.0287090%
b	In fabrication yard	MT	6	0.0226100%

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ST. NO	Description	UNIT	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
2314	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required posiion, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismnatled members, re-alignment of adjacent connected members(weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	10	0.0297640%
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	6	0.3114770%
2320A	Fixing of GI pipe hand railing of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete.	MT	6	0.0622950%
TOTAL PRICE				100.0000000%