



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)

TCN - 15

Ref: PSER:SCT:SDG-C2063:TCN-15

Date: 24-09-2020

Sub	Tender Change Notice (TCN) - 15	
Job	Civil, Structural & Architectural works for coal handling plant & ash handling plant except piling of 1 x 660 MW Unit-V, Sagardighi TPP extension.	
Ref	1.0	Tender no: PSER:SCT:SDG-C2063:20
	2.0	BHEL's NIT, vide reference no: PSER:SCT:SDG-C2063:8064, Date: 22-07-2020.
	3.0	BHEL's TCN- 01, vide ref. no. PSER:SCT:SDG-C2063:TCN-01, Date: 06-08-2020.
	4.0	BHEL's TCN- 02, vide ref. no. PSER:SCT:SDG-C2063:TCN-02, Date: 10-08-2020.
	5.0	BHEL's TCN- 03, vide ref. no. PSER:SCT:SDG-C2063:TCN-03, Date: 12-08-2020.
	6.0	BHEL's TCN- 04, vide ref. no. PSER:SCT:SDG-C2063:TCN-04, Date: 17-08-2020.
	7.0	BHEL's TCN- 05, vide ref. no. PSER:SCT:SDG-C2063:TCN-05, Date: 21-08-2020.
	8.0	BHEL's TCN- 06, vide ref. no. PSER:SCT:SDG-C2063:TCN-06, Date: 22-08-2020.
	9.0	BHEL's TCN- 07, vide ref. no. PSER:SCT:SDG-C2063:TCN-07, Date: 26-08-2020.
	10.0	BHEL's TCN- 08, vide ref. no. PSER:SCT:SDG-C2063:TCN-08, Date: 01-09-2020.
	11.0	BHEL's TCN- 09, vide ref. no. PSER:SCT:SDG-C2063:TCN-09, Date: 05-09-2020.
	12.0	BHEL's TCN- 10, vide ref. no. PSER:SCT:SDG-C2063:TCN-10, Date: 10-09-2020.
	13.0	BHEL's TCN- 11, vide ref. no. PSER:SCT:SDG-C2063:TCN-11, Date: 17-09-2020.
	14.0	BHEL's TCN- 12, vide ref. no. PSER:SCT:SDG-C2063:TCN-12, Date: 18-09-2020.
	15.0	BHEL's TCN- 13, vide ref. no. PSER:SCT:SDG-C2063:TCN-13, Date: 21-09-2020.
	16.0	BHEL's TCN- 14, vide ref. no. PSER:SCT:SDG-C2063:TCN-14, Date: 22-09-2020.
	17.0	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 the offer

1. Revised PRE QUALIFICATION CRITERIA (ANNEXURE-1), REV-01 is attached superseding previous criteria issued along with NIT. Bidder shall quote their offer accordingly.
2. Revised Price Schedule, **VOLUME-III-PRICE SCHEDULE-REV-02** is attached superseding **VOLUME-III-PRICE SCHEDULE-REV-01** issued earlier along with TCN-06. **Bidders shall quote as per this revised Volume-III, Rev-02 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 Volume-IF-TCC-CML-Rev-01 is attached, superseding Volume-IF-TCC-CML-Rev-00 issued earlier along with NIT. Bidders are requested to go through entire volume before submitting their offer.
4. Due date of submission of offer is extended from **24-09-2020** to **01-10-2020 (15-00 hrs)**. Bidders are requested to submit their offer by extended due date positively.
5. Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
6. All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

Encl: As Above.

Dy.Mgr (SCT)

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 : (033) 2339-8000/ 2339 8231

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TCN-15	PRE QUALIFICATION CRITERIA - ANNEXURE-1 (REV 01)	PAGE 1 OF 7

ANNEXURE-1 (REV-01)

PRE QUALIFICATION CRITERIA

JOB	CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.
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SL NO.	CRITERIA
1.0	FINANCIAL CRITERIA
(a)	BIDDER SHOULD HAVE AVERAGE MINIMUM ANNUAL FINANCIAL TURNOVER OF INR 33.98 Cr DURING THE LAST 3 (THREE) YEARS, ENDING ON 31-03-2019 OR CORRESPONDING FINANCIAL YEAR FOLLOWED BY THE BIDDER AND HAVING POSITIVE NET WORTH AS ON LATEST AUDITED ACCOUNTS AS SUBMITTED FOR PARA 1(C).
(b)	BIDDER MUST HAVE EARNED PROFIT IN ANY ONE OF THE LAST THREE FINANCIAL YEARS ENDING ON 31-03-2019 OR CORRESPONDING FINANCIAL YEAR FOLLOWED BY THE BIDDER. AUDITED BALANCE SHEET AND PROFIT & LOSS ACCOUNT OF THE COMPANY FOR LAST 3 (THREE) FINANCIAL YEARS, ENDING ON 31-03-2019 OR CORRESPONDING FINANCIAL YEAR FOLLOWED BY THE BIDDER NEED TO BE SUBMITTED IN SUPPORT OF ABOVE.
(c)	IN CASE AUDITED BALANCE SHEET AND PROFIT AND LOSS ACCOUNT HAS NOT BEEN SUBMITTED FOR ALL THREE YEARS INDICATED ABOVE THEN THE APPLICABLE FINANCIAL AUDITED STATEMENTS SUBMITTED BY THE BIDDERS AGAINST THE REQUISITE THREE YEARS WILL BE AVERAGED FOR THREE YEARS.
(d)	IF FINANCIAL STATEMENTS ARE NOT REQUIRED TO BE AUDITED STATUTORILY, THEN INSTEAD OF AUDITED FINANCIAL STATEMENTS, FINANCIAL STATEMENTS ARE REQUIRED TO BE CERTIFIED BY CHARTERED ACCOUNTANT.
2.0	TECHNICAL CRITERIA
2.1	<p>BIDDER SHOULD HAVE EXECUTED PILING OR CIVIL OR STRUCTURE OR 'CIVIL AND STRUCTURAL WORKS' OR RCC CHIMNEY OR RCC COOLING TOWER OR RCC SILO OR MILL BUNKER OR ANY COMBINATION OF THESE DURING THE LAST 7 (SEVEN) YEARS, ENDING ON THE LATEST DATE OF BID SUBMISSION, VALUE OF WHICH SHOULD NOT BE LESS THAN EITHER OF THE FOLLOWING:</p> <p>A) 1 (SINGLE) WORK OF VALUE NOT LESS THAN INR 90.60 Cr. OR B) 2 (TWO) WORKS OF VALUE NOT LESS THAN INR 56.63 Cr EACH. OR C) 3 (THREE) WORKS OF VALUE NOT LESS THAN INR 45.30 Cr EACH.</p> <p>RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED.</p>
2.2	<p>BIDDER SHOULD HAVE EXECUTED THE FOLLOWING WORK IN EACH CASE DURING LAST 7 (SEVEN) YEARS, ENDING ON THE LATEST DUE DATE OF SUBMISSION OF OFFER</p> <p>RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED.</p>
2.2.1	<p>2.2.1.1 AT LEAST 7898 CUM OF RCC QUANTITIES WITHIN A COMMON PERIOD OF TWELVE CONSECUTIVE MONTHS IN CUMULATIVE OF TWO RUNNING/COMPLETED CONTRACTS. OR 2.2.1.2 AT LEAST 5266 CUM OF RCC QUANTITIES WITHIN A PERIOD OF TWELVE CONSECUTIVE MONTHS IN ONE RUNNING/COMPLETED CONTRACT.</p>
2.2.2	<p>2.2.2.1 AT LEAST 80% OF CIVIL WORK OF AT LEAST ONE WAGON TIPPLER OR UNDERGROUND TRANSFER HOUSE OR UNDERGROUND RECLAIM HOPPER OR UNDERGROUND PUMP HOUSE OR TRACK HOPPER OR INTAKE PUMP HOUSE IN SEA/RIVER/DAM/ANY OTHER WATER BODY HAVING MINIMUM DEPTH OF 8M OR AT LEAST 80% OF CIVIL WORKS OF ONE UNDERGROUND RCC STRUCTURE HAVING MINIMUM DEPTH OF 8M BELOW GROUND LEVEL. OR 2.2.2.2 ONE CIVIL WORK COMPRISING OF AT LEAST ONE WAGON TIPPLER CIVIL WORKS, FOR AT LEAST ONE UNIT OF 190 MW OR HIGHER RATING.</p>
2.3	<p>BIDDER SHOULD HAVE EXECUTED THE FOLLOWING WORK IN A RUNNING/COMPLETED CONTRACT IN EACH CASE DURING LAST 7 (SEVEN) YEARS, ENDING ON THE LATEST DUE DATE OF SUBMISSION OF OFFER</p> <p>2.3.1 AT LEAST ONE NO. ABOVE GROUND RCC SILO UP TO AT LEAST 18 MTR HEIGHT. OR 2.3.2 SHELL OF ONE RCC CHIMNEY UP TO AT LEAST 12 MTR HEIGHT OR 2.3.3 SHELL OF ONE NDCT (NATURAL DRAFT COOLING TOWER) UP TO AT LEAST 12 MTR HEIGHT OR 2.3.4 ANY OTHER RCC STRUCTURE UP TO AT LEAST 24 MTR HEIGHT USING SLIP-FORM/JUMP FORM TECHNIQUE.</p> <p>RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED.</p>

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2.4	<p>BIDDER SHOULD HAVE EXECUTED THE FOLLOWING WORK IN EACH CASE DURING LAST 7 (SEVEN) YEARS, ENDING ON THE LATEST DUE DATE OF SUBMISSION OF OFFER</p> <p>2.4.1.1 AT LEAST 3230 MT OF STRUCTURE FABRICATION WORKS WITHIN A COMMON PERIOD OF TWELVE CONSECUTIVE MONTHS IN CUMULATIVE OF TWO RUNNING/COMPLETED CONTRACTS. AND 2.4.1.2 AT LEAST 3230 MT OF STRUCTURE ERECTION WORKS WITHIN A COMMON PERIOD OF TWELVE CONSECUTIVE MONTHS IN CUMULATIVE OF TWO RUNNING/COMPLETED CONTRACTS. OR</p> <p>2.4.2.1 AT LEAST 2154 MT OF STRUCTURE FABRICATION WORKS WITHIN A PERIOD OF TWELVE CONSECUTIVE MONTHS IN ONE RUNNING/COMPLETED CONTRACT. AND 2.4.2.2 AT LEAST 2154 MT OF STRUCTURE ERECTION WORKS WITHIN A PERIOD OF TWELVE CONSECUTIVE MONTHS IN ONE RUNNING/COMPLETED CONTRACT. OR</p> <p>2.4.3 EXECUTED STRUCTURE WORK OF MILL BUNKER FOR AT LEAST ONE UNIT OF 190 MW OR HIGHER RATING.</p> <p>RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED. OR</p> <p>2.4.4 BIDDER SHOULD HAVE SOLELY EXECUTED BOILER CONSISTING OF STRUCTURES, PRESSURE PARTS OF SAME UNIT FOR AT LEAST ONE UNIT OF 190 MW OR HIGHER RATING.</p> <p>RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED.</p>
2.5	<p>BIDDER SHOULD HAVE EXECUTED CIVIL, STRUCTURAL & ARCHITECTURAL WORKS OF AT LEAST 02 NOS COAL HANDLING SYSTEM CONSISTING OF COAL CONVEYING AND CRUSHING PLANT OF CAPACITY 800 MTPH OR HIGHER RATING HAVING STRUCTURES OF TRACK HOPPER/WAGON TIPPLER HOPPER & TUNNEL DURING THE LAST 07 YEARS FROM 01/02/2018</p> <p>RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED.</p>
3.0	<p>BIDDER SHOULD HAVE VALID PAN.</p> <p>RELEVANT DOCUMENT IN SUPPORT OF ABOVE SHALL BE SUBMITTED.</p>
4.0	<p>IN CASE A BIDDER DOES NOT SATISFY PQR- 2.2.2, 2.3 & 2.5 ABOVE, THEN THE BIDDER CAN FORM CONSORTIUM FOR MEETING PQR – 2.2.2, 2.3 & 2.5.</p> <p>IN CASE OF CONSORTIUM BIDDING, FOLLOWING SHALL BE APPLICABLE:</p>
4.1	IN CASE OF CONSORTIUM BIDDING, EITHER PRIME BIDDER OR CONSORTIUM PARTNER/PARTNERS SHALL COMPLY WITH CRITERIA 2.2.2, 2.3 & 2.5 IN ANY COMBINATION.
4.2	PRIME BIDDER SHALL BE RESPONSIBLE FOR SATISFYING THE FINANCIAL PQR 1.0 ABOVE.
4.3	PRIME BIDDER SHALL SUBMIT THE ENTIRE TENDER ALONG WITH THE CREDENTIALS, ALL STATUTORY DOCUMENTS AND THE DOCUMENTS IN SUPPORT OF PQR CONDITIONS OF THE CONSORTIUM PARTNER/PARTNERS.
4.4	NUMBER OF PARTNERS INCLUDING PRIME BIDDER SHALL NOT BE MORE THAN 3 (THREE).
4.5	PRIME BIDDER AND CONSORTIUM PARTNER/PARTNERS SHALL ENTER IN TO A CONSORTIUM AGREEMENT & CERTIFY TO BHEL REGARDING EXISTENCE AND VALIDITY OF THEIR CONSORTIUM AGREEMENT IN LINE WITH VALIDITY PERIOD MENTIONED IN NIT.
4.6	PRIME BIDDER AND CONSORTIUM PARTNER/PARTNERS EACH SHALL COMPLY WITH CRITERIA UNDER SL NO 3.0.
4.7	IN CASE OF CONSORTIUM BIDDING, PRIME BIDDER SHALL BE RESPONSIBLE FOR OVERALL EXECUTION OF THE CONTRACT.
4.8	PRIME BIDDER SHALL NECESSARILY COMPLY WITH TECHNICAL CRITERIA 2.1.
4.9	PRIME BIDDER SHALL COMPLY WITH CRITERIA 2.2.1 & 2.4.
4.10	PRIME BIDDER SHALL COMPLY WITH ALL OTHER PRE-QUALIFYING CRITERIA FOR THE TENDER UNLESS OTHERWISE SPECIFIED
4.11	THE CONSORTIUM PARTNER SHALL DEPOSIT SECURITY DEPOSIT OF 1 % OF TOTAL CONTRACT VALUE IN ADDITION TO SECURITY DEPOSIT TO BE SUBMITTED BY PRIME BIDDER FOR THE TOTAL CONTRACT VALUE.
4.12	PERFORMANCE SHALL BE EVALUATED FOR PRIME BIDDER AND THE CONSORTIUM PARTNER FOR THEIR RESPECTIVE SCOPE OF WORK. AFTER EXECUTION OF WORK, THE WORK EXPERIENCE SHALL BE ASSIGNED TO THE PRIME BIDDER AND THE CONSORTIUM PARTNER FOR THEIR RESPECTIVE SCOPE OF WORK.
4.13	IN CASE THE CONSORTIUM PARTNER BACKS OUT, ANOTHER CONSORTIUM PARTNER MEETING THE AFORESAID PERTINENT QUALIFYING REQUIREMENTS, HAS TO BE ENGAGED BY PRIME BIDDER AND IF NOT, THE RESPECTIVE WORK WILL BE WITHDRAWN AND EXECUTED AT THE RISK & COST BASIS OF THE PRIME BIDDER.
4.14	IN CASE PRIME BIDDER WITHDRAWS OR INSOLVENCY/LIQUIDATION/WINDING UP PROCEEDINGS HAVE BEEN INITIATED /ADMITTED AGAINST THE PRIME BIDDER, BHEL RESERVES THE RIGHT TO CANCEL , TERMINATE OR SHORT CLOSE THE CONTRACT OR TAKE ANY OTHER ACTION TO SAFEGUARD BHEL's INTEREST IN THEPROJECT/CONTRACT.
NOTE	
1.0	'EXECUTED' MEANS BIDDER SHOULD HAVE ACHIEVED THE CRITERIA SPECIFIED ABOVE EVEN IF THE CONTRACT HAS NOT BEEN COMPLETED OR CLOSED.
2.0	BIDDER SHOULD FURNISH INFORMATION REGARDING PROJECTS IN HAND, CURRENT LITIGATION, ORDERS REGARDING EXCLUSION/ EXPULSION OR BLACK LISTING.

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3.0	AFTER SATISFACTORY FULFILLMENT OF ALL THE ABOVE CRITERIA, OFFER SHALL BE CONSIDERED FOR FURTHER EVALUATION AS PER NIT AND ALL OTHER TERMS OF THE TENDER SUBJECT TO CUSTOMER'S APPROVAL OF THE BIDDER (INCLUDING CONSORTIUM PARTNER/PARTNERS).
4.0	BIDDER MUST NOT BE UNDER BANKRUPTCY CODE PROCEEDINGS (IBC) BY NCLT OR UNDER LIQUIDATION / BIFR, WHICH WILL RENDER HIM INELIGIBLE FOR PARTICIPATION IN THIS TENDER, AND SHALL SUBMIT UNDERTAKING TO THIS EFFECT.

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Explanatory Notes for the PQR (unless otherwise specified in the PQR):

1. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated along with all annexures.
2. In case audited Financial statements have not been submitted for all the three years as indicated, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e total divided by three.
3. Net Worth (Only in case of companies) of the bidder should be positive. Net worth shall be calculated based on the latest Audited Accounts as furnished. Net worth = Paid up share capital + Reserves.
4. PROFIT shall be PBT earned during any one year of last three financial years.
5. 'Additional' Criteria in respect of 'Technical' criteria of PQR for Civil, Electrical, CI, unless otherwise specified:
 - i) 'Similar' work means
 - a. Piling or Civil or Structure or 'Civil and Structural works' or RCC Chimney or RCC Cooling Tower or RCC Silo or Mill Bunker or any combination of these shall be considered similar works for all packages mentioned under 'CIVIL WORKS'
 - b. Electrical or C&I or 'Electrical and C&I' shall be considered similar works for all packages mentioned under 'ELECTRICAL AND C&I WORKS'
6. For evaluation of PQR of Civil, Electrical and C&I packages, in case Bidder alone does not meet the 'Additional' pre-qualifying technical criteria, bidder may utilize the experience of its Parent/ Subsidiary Company along with its own experience, subject to following:
 - a. The parent company shall have a controlling stake of $\geq 50\%$ in the subsidiary company (as per Format-1).
 - b. The Parent Company/ Subsidiary Company of which experience is being utilized for bidding shall submit Security Deposit(SD) equivalent to 1% of the total contract value.
 - c. The parent/ subsidiary company and bidder shall provide an undertaking that they are jointly or severally responsible for successful performance of the contract (as per Format-2).
 - d. In case Bidder is submitting bid as a Consortium Partner, option of utilizing experience of parent/subsidiary Company can be avail by Prime Bidder only.
 - e. Parent Company/ Subsidiary Company of which experience is being used for bidding, cannot participate as a 'Standalone Bidder' or as a 'Consortium bidder'.
7. Completion date for achievement of the technical criteria specified in the Common QR should be in the last 7 years ending on the 'latest date of Bid Submission' of Tender irrespective of date of the start of work.
8. 'EXECUTED' means the bidder should have achieved the criteria specified in the Technical criteria of PQR even if the Contract has not been completed or closed
9. In case the Experience/PO/WO certificate enclosed by bidders do not have separate break up of prices for the E&C portion for Electrical and C&I works (i.e. the certificates enclosed are for composite order for supply and erection of Electrical and C&I and other works if any), then value of Erection & Commissioning for the Electrical and C&I portion shall be considered as 15% of the price for supply & erection of Electrical and C&I.
10. Unless otherwise specified, for the purpose of "Technical Criteria" of PQR, the word 'EXECUTED' means achievement of milestones as defined below -
 - "ACHIEVEMENT OF PHYSICAL QUANTITIES" as per PQRs.
 - "READINESS FOR COAL FILLING" of at least one Bunker, in respect of Mill Bunker Structure.
 - "CHARGING" in respect of Power Transformers/ Bus Ducts/ "HT/LT Switchgears" / "HT/LT Cabling".
 - For C&I works: "SYNCHRONISATION" in case of power project / "WORK EXECUTION of the value as defined in PQR" in case of industry.
 - "BOILER LIGHT UP" in respect of Boiler / CFBC / ESP.
 - "CHARGING OF ATLEAST ONE PASS" in respect of ESP(R&M)
 - "GAS IN" in respect of HRSG.
 - "STEAM BLOWING" in respect of Power Cycle Piping.
 - "HYDRAULIC TEST"/ ANY OTHER EQUIVALENT TEST LIKE "100% RT/UT OF WELDED JOINTS" of the system in respect of Pressure parts/ LP Piping/CW Piping.
 - "FULL LOAD OPERATION OF THE UNIT" in respect of Insulation work.
 - "SYNCHRONISATION" in respect of STG / GTG.
 - "SPINNING" in respect of HTG.
 - "GAS IN" in respect of FGD
11. Boiler means HRSG or WHRB or any other types of Steam Generator
12. Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass

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13. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5 TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating of the same in terms of MW shall be considered for evaluation.
14. Value of work is to be updated with indices for "All India Avg. Consumer Price index for industrial workers" and "Monthly Whole Sale Price Index for All Commodities" with base month as per last month of work execution and indexed up to three (3) months prior to the month of latest due date of bid submission as per following formula-

$$P = R + 0.425 \times R \times \frac{(X_N - X_0)}{X_0} + 0.425 \times R \times \frac{(Y_N - Y_0)}{Y_0}$$

Where

P = Updated value of work

R = Value of executed work

X_N = All India Avg. Consumer Price index for industrial workers for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).

X_0 = All India Avg. Consumer Price index for industrial workers for last month of work execution

Y_N = Monthly Whole Sale Price Index for All Commodities for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).

Y_0 = Monthly Whole Sale Price Index for All Commodities for last month of work execution

15. Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking to this effect.

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Format-1 /PQ Explanatory Note

Certificate for relationship between Parent Company / Subsidiary Company and the bidder

To,
.....
.....

Dear Sir,

Sub: Bid for NIT Nodated..... for “.....” (name of the tender).

We hereby certify that M/s..... is Parent Company/ Subsidiary Company of M/s(the bidder) and details of equity holding of the Parent Company in Subsidiary Company as on(not earlier than seven days prior to the Bid Submission Date) are given as below:

Name of Parent Company	Name of Subsidiary Company	Percentage of Equity Holding of Parent Company in Subsidiary Company

(Insert Name and Signature of Statutory Auditor or practicing Company Secretary of the Bidder)

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Format-2 /PQ Explanatory Note

Undertaking from the Parent Company/ Subsidiary Company of the bidder

(On the Letter Head of Parent Company/ Subsidiary Company, as applicable)

From,
Name:
Full Address:

Telephone No.:
E-mail address:
Fax/No.:

To,
.....
.....

Dear Sir,

We refer to the NIT No..... dated..... for “.....” (name of the Tender).

“We have carefully read and examined in detail the NIT/Tender Terms and Conditions, including in particular, Clause of the NIT/Tender, regarding submission of an Undertaking, as per the prescribed Format 1 of the NIT/ Tender.

We confirm that M/s.....(the Bidder) has been authorized by us to use our Technical capability for meeting the Technical Criteria as specified in Clause.....of the PQR of the NIT/Tender referred above.

We agree to submit the Security Deposit equivalent to 1% of the total contract value in addition to Security Deposit to be submitted by Bidder as per Clause.....of the NIT/Tender for fulfillment of all obligations in terms of provisions of the contract, in the event of(the Bidder) being selected as the Successful Bidder.

We confirm that we along with M/s.....(the bidder), are jointly or severally responsible for successful performance of the contract.

We confirm that our company shall not participate in the above tender as a ‘Standalone Bidder’ or as a ‘Consortium bidder’ and also shall not authorize any other bidder to use our Technical capability for the above tender.

All the terms used herein but not defined, shall have the meaning as ascribed to the said terms under the referred NIT/Tender.

Signature of Managing Director/Authorized signatory of Parent/ Subsidiary Company

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VOLUME-IF-TCC-CML-REV-01	TECHNICAL CONDITIONS OF CONTRACT, SCOPE ETC	PAGE 1 OF 42

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This volume shall be construed as part of tender document and shall be read along-with others volumes of tender. Unless otherwise specified, in case of any conflict or inconsistency between the general and technical conditions, the same shall be brought out by the bidder in writing to BHEL for clarification; failing which most stringent interpretation/ clause in favour of BHEL shall be adopted and the same shall be binding to the bidder. Unless otherwise specified, all terms & conditions shall be applicable for entire scope and for each package of the tender.

CLAUSE NO	DESCRIPTION
1.0	PROJECT SYNOPSIS AND GENERAL INFORMATION
1.1	<p>DETAILS OF PROPOSED STAGE/ UNITS</p> <p>Project name: Sagardighi Thermal Power Extension Project, unit # 5, 1x660 MW. No of unit x capacity: 1 x 660 MW (Super-critical). Project setting up by: West Bengal Power Development Corporation Limited. Design ambient dry bulb temp: 50⁰ C maximum & 5⁰ C minimum Max relative humidity: 84%. Average rainfall: 1389 mm.</p>
1.2	<p>APPROACH TO SITE</p> <p>The site is located at Manigram, about 13 km north of Sagardighi town by the side of the SMGR (Sagardighi-Manigram-Gankar-Raghunathgunj) road at a distance 20 km. from National Highway 34 in Murshidabad district in W.B and around 240 km from Kolkata. Nearest railway station is Manigram adjacent to the site on Bandel-Barhawara branch line and 6.5 km from Sagardighi Railway Station on Sainthia-Azimgunj line of Eastern Railway. Nearest Airport: NSC Bose Air Port, Kolkata. Nearest Seaport: Haldia / Kolkata</p>
2.0	<p>SITE VISIT</p> <p>The contractor should visit project site and acquire full knowledge and information about conditions prevailing at site and in & around the plant premises, together with all the statutory, obligatory, mandatory requirements of various authorities before submission of the bid.</p>
3.0	<p>NAME OF WORK</p> <p>Civil, Structural & Architectural Works for Coal Handling Plant & Ash Handling Plant except leveling & grading, Piling & testing of Piles of 1 X 660 MW Unit-5, Sagardighi TPP Extension</p>
4.0	SCOPE OF WORK
4.1	<p>The scope broadly covers providing labour, supervision, materials (except those which will be supplied by BHEL free of cost), T&Ps, consumables etc as per relevant portion of technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date for the following jobs:</p> <ol style="list-style-type: none"> 1) Wagon Tippler complex including all accessory structures and building as per detailed technical specification. 2) MCC Building 3) Tunnel 4) Crusher House 5) Over Ground Transfer Points (TPs) 6) Overground Galleries and Trestles 7) Area Grading, Roads & Drainage of CHP/AHP areas 8) Civil and structural works for Ash handling and disposal system. 9) Vacuum pump house cum AHP compressor house 10) CHP Utility building. 11) Wagon Trippler control building. 12) Ash Silo Electrical building. 13) Any other structures / buildings as to be envisaged during detailed engineering of the AHP and CHP system. 14) Demolition of existing structures / facilities, if any, and site clearance. 15) Other Misc. works.

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4.2	<p>The scope shall include other related works although they may not be specifically mentioned in the subsequent clauses and all such incidental items not mentioned, but are necessary for completion of the work as a whole. The scope also includes supply of all labour, technical personnel, materials, consumables and equipment for execution of work and getting all materials tested at site laboratory or approved laboratory outside, submitting test reports, arranging supervision etc. and execution of the contract with major areas of work mentioned above.</p> <p>Ready mix concrete shall be given by BHEL Free of Cost at Batching Plant inside the plant premises. Bidder has to transport the concrete from batching plant to the location of work. Bidder to submit a receipt of concrete at batching plant based on the print out of batching. Reconciliation of quantity of concrete shall be done based on actual use of concrete at site.</p>
4.3	Any buried pipe/ cable coming in the working fronts are to be removed safely & re-routed by the contractor at no extra cost to BHEL.
4.4	The work to be performed under this specification consists of providing all temporary works, temporary storage sheds for contractors own use, temporary colony for labour and staff, temporary site offices, constructional plant's transportation / handling and all incidental items not shown or specified but reasonably implied or necessary for the completion of subject scope, all in strict accordance with the specifications including revisions and amendments thereto as may be required during the execution of work.
4.5	All quality standards, tolerances, welding standards & other technical requirements shall be strictly adhered to. The bidder shall fully apprise himself of the prevailing conditions at the proposed site, climatic conditions including monsoon pattern, soil conditions, local conditions and site specific parameters and shall include for all such conditions and contingent measures in the bid, including those which may not have been specifically brought out in the specifications.
4.6	The scope shall also include setting up by the bidder a testing laboratory (one AC lab size 4.5mtr x 4.5mtr and 1 non AC lab 4.5 mtr x 6mtr) in the field to carry out all relevant tests. Detail of laboratory equipments as per relevant annexure of this tender is to be arranged by the contractor within quoted / accepted rate. For conducting day to day work, one no. chemist / Qualified quality engineer to be deployed as necessary.
4.7	The scope shall also include setting up by the bidder a testing room with compressive test machine for testing of concrete cubes and other site test instruments for conducting day to day testing of concrete cubes, compaction, brick & material testing work. One Qualified quality engineer to be deployed as necessary.
4.8	The successful bidder shall strictly abide by State & Central laws, statutory rules, regulations, Labour law, BOCW etc as indicated in tender. In addition, successful bidder shall comply with PF regulations, etc for all their employees/ workmen as per local authorities/ Governing Body instructions. Compliance with statutory obligations as well as any other requirements/ provisions with respect to successful bidder's manpower, equipment including insurance, medical facilities, minimum wages, safety requirements, accommodations, etc are the responsibility of successful bidder.
5.0	<p>DEVIATIONS</p> <p>The bidder is required to submit with his offer in the relevant 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.</p>
6.0	<p>DEWATERING</p> <p>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</p>

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	/ 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.
7.0	GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)
7.1	Except where otherwise specified, the plant / equipment shall comply with appropriate Indian Standard or an agreed internationally accepted Standard Specification as mentioned elsewhere in tender, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the bidder shall give all particulars and details as necessary; to enable BHEL to identify all of the plant/ equipment in the same detail as would be possible had there been a standard specification.
7.2	Where the bidder proposes alternative codes or standards he shall include in his tender one copy (in English) of each standard specification to which materials offered shall comply. In such case, the adopted alternative standard shall be equivalent or superior to the standards mentioned in the specification.
7.3	In the event of any conflict between the codes & standards referred above and requirements of this specification, the requirements which are more stringent shall govern.
7.4	Tools used during erection and commissioning shall not be accepted except with the specific approval of the engineer.
7.5	Wherever specified or required the plant / equipment shall conform to various statutory regulations such as Indian Boiler Regulation, Indian Electricity Rules, Indian Explosive Act, Factories Act etc, wherever required, obtaining approval for plant / equipment supplied under the specification from statutory authorities shall be the responsibility of the contractor.
8.0	GENARL SERVICES TO BE RENDERED BY THE BIDDER
8.1	Services for construction, fabrication, erectionetc.under the contract shall include but not be limited to the following.
8.2	Collecting materials from store / open yard from time to time for fabrication / erection as per the construction program and unloading of steel& other material as per flow of consignment. The contractor shall be the custodian of all the materials issued till the plant / equipment is officially taken over by the owner / BHEL after complete erection and commissioning. The contractor shall maintain adequate security personnel and security measures for proper precaution and safety of material.
8.3	Deployment of all skilled and unskilled manpower required for erection supervision, watch & ward, for commissioning and other services to be rendered under this specification.
8.4	Deployment of all erection/construction tools & tackle, construction machinery, transportation vehicles and all other implements in adequate number and size, appropriate for the erection/construction work to be handled under scope of this specification except otherwise specified.
8.5	Supply of all consumables, e.g. welding electrodes, etc as well as materials required for temporary supports, scaffolding etc as necessary for such construction work, unless specified other wise.
8.6	Providing support services for the contractor's erection staff e.g. construction of site offices, temporary stores, residential accommodation and transport to work site for erection personnel, watch and ward for security and safety of the materials under the Contractor's custody etc. as required.
8.7	Maintaining proper documentation of all site activities undertaken by the contractor as per the proforma mutually agreed with BHEL, submitting monthly progress reports as also any such document as and when desired by BHEL/ owner, taking approval of all statutory authorities e.g., Factory Inspector, Provident Fund authority etc. for respective portions of work under the jurisdiction of such statutes of laws.

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8.8	As part of overall project management activity, the contractor shall be responsible for proper co-ordination of erection/construction activities during various phases of execution of the contract. The contractor shall identify a person designated as construction manager, with whom BHEL shall interact on matters related to execution of the contract. The construction manager shall be the single point contact person on behalf of the contractor. BHEL shall interact with the construction manager only on all matters on co-ordination between BHEL and the contractor. For timely completion of work, the contractor may have to work in one or more shifts. He will not be eligible for any extra charge on this account.
8.9	The contractor shall confine all his field operations to those works which can be reformed without subjecting the equipment and materials to adverse effects, during inclement weather conditions, like monsoon, storms etc and during other unfavourable construction conditions. No field activities shall be performed by the contractor under conditions which might adversely affect the quality and efficiency thereof, unless special precautions or measures are taken by the contractor in proper and satisfactory manner in the performance of such works and with the concurrence of the engineer. Such unfavourable construction conditions in no way relieve the contractor of his responsibility to perform the works as per the schedule.
8.10	The contractor shall supply all the skilled workmen likewelders, gas cutters, electricians, riggers, sarangs, erectors, carpenters, pipe fitters, masons, ladders, tin-smiths, instrument machanicsetc, in addition to other skilled, semi-skilled and unskilled workmen required for all works of handling and transportation from site store to erection/construction site, construction/erection, testing and commissioning contemplated under this specification. Only fully trained and competent men with previous experience on the job shall be employed. They shall hold valid certificates wherever necessary. BHEL reserve the right to decide on the suitability of the workers and the other personnel who will be employed by the contractor. BHEL reserves the right to insist on removal of any employee of the contractor at any time, if they find him unsuitable and the contractor shall forthwith remove him.
8.11	The supervisory staff employed by the contractor shall be technically qualified and experienced in the area of work. They shall ensure proper out turn of work and discipline on the part of labour put on the job by the contractor and in general see that the works are carried out in a safe and proper manner and in coordination with other labour and staff employed directly by BHEL or other contractors of BHEL and BHEL's client.
8.12	The contractor shall also furnish daily labour report showing by classification the number of employees engaged in various categories of work. The contractor shall also furnish progress report of work as required by BHEL engineer.
8.13	The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The contractor and his personnel shall co-operate with other personnel, and other contractors, co-ordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
8.14	The contractor's supervisory staff shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. The contractor shall be responsible to ensure that assembly and workmanship conform to the dimensions and tolerance given in the drawing / instruction given by BHEL Engineer from time to time.
8.15	It is the responsibility of the contractor to engage his workman in shifts or on overtime basis for achieving the target set by BHEL during construction/erection, commissioning and testing period. Contractor's quoted rate shall include all these contingencies.
8.16	Any other service, although not specifically called for but required for a contract of the size and nature indicated in the specification.
9.0	PROTECTION

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9.1	Equipment having anti-friction or sleeve bearings shall be protected by weather tight enclosures. Coated surfaces shall be protected against impact, abrasion, discoloration and other damages. Surfaces which are damaged shall be repainted.
9.2	Electrical equipments, controls and insulations shall be protected against moisture and water damages. All external gasket surfaces and flange faces, couplings, rotating equipment shafts, bearings and like items shall be thoroughly cleaned and coated with rust preventive compound and protected with suitable wood, metal or other substantial type covering to ensure their full protection. All exposed threaded parts shall be greased and protected with metallic or other substantial type protectors
9.3	All piping, tubing and conduit connections on equipment and equipment openings shall be closed with rough usage covers or plugs. Female threaded openings shall be closed with rough usage covers or plugs or forged steel plugs. The closures shall be taped to seal the interior of the equipment. Open ends of piping, tubing and conduit shall be sealed and taped.
9.4	All other consumables including wire brush, emery papers, painting brush etc to be supplied by the contractor within the quoted rate.
10.0	GENERAL GUIDELINES FOR FIELD ACTIVITIES
10.1	The contractor shall execute the works in a professional manner so as to achieve the target schedule without any sacrifice on safety & quality and maintaining highest standards of safety and cleanliness.
10.2	The contractor shall co-operate with owner/ BHEL and other contractors working in site and arrange to perform his work in a manner so as to minimise interference with other contractor's works. BHEL's engineer shall be notified promptly of any defect in other contractors' works that could affect the contractor's work. If rescheduling of contractor's work is requested by the owner's / BHEL's engineer in the interest of overall site activities, the same shall be complied with by the contractor. In all cases of controversy, the decision of BHEL shall be final and binding on the contractor without any commercial implication.
10.3	The engineer shall hold weekly meeting of all the contractors working at site at a time and a place to be designated by the engineer. The contractor shall attend such meetings and take notes of discussions during the meeting and the decisions of the engineer and shall strictly adhere to those decisions in performing this work. In addition to the above weekly meeting, engineer may call for other meetings either with individual contractors or with selected number of contractors and in such a case the contractor, if called will also attend such meetings.
10.4	Time is the essence of the contract and the contractor shall be responsible for performance of his work in accordance with the specified construction schedule. If at any time the contractor is falling behind the schedule, he shall take necessary action to make good of such delays by increasing his work to comply with the schedule and shall communicate such action in writing to the engineer, satisfying that his action will compensate for the delay. The contractor shall not be allowed any extra compensation for such action.
10.5	The engineer shall however not be responsible for provision of additional labour and or materials or supply of any other services to the contractor except for the co-ordination work between various contractors as set out earlier.
10.6	The works under execution shall be open to inspection & supervision by BHEL's / Owner's engineer at all times. The contractor shall give reasonable notice to BHEL before covering up or otherwise placing beyond the reach of inspection any work, in order that same may be verified, if so desired by owner/ BHEL.
10.7	Every effort shall be made to maintain the highest quality of workmanship by stringent supervision and inspection at every stage of execution. Manufacturer's instruction manual and guidelines on sequence of construction/erection and precautions shall be strictly followed. Should any error or ambiguity be discovered in such documents the same shall be brought to the notice of BHEL's engineer. Manufacturer's interpretation in such cases shall be binding on the contractor.

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10.8	The contractor shall comply with all the rules and regulations of the local authorities, all statutory laws including Minimum Wages, Workmen Compensation etc. All registration and statutory inspection fees, if any, in respect of the work executed by the contractor shall be to his account.
10.9	All the works such as making approaches for movement of manpower & machineries, barricading, scaffolding, cleaning, checking, levelling, blue matching, aligning, assembling, temporary erection for alignment, opening, dismantling of certain structure for checking and cleaning, surface preparation, edge preparation, fabrication of tubes and pipes as per general engineering practice at site, cutting, grinding, straightening, chamfering, filling, chipping, drilling, reaming, scrapping, shaping, fitting-up, bolting/ welding, etc as may be applicable in such construction/erection and necessary to complete the work satisfactorily, are to be treated as incidental and the same shall be carried out by the contractor as part of the work.
10.10	It is the responsibility of the contractor to do the alignment etc if necessary, repeatedly to satisfy engineer, with all the necessary tools & tackles, manpower etc. The alignment will be complete only when jointly certified so, by the contractor's engineer and BHEL. Also the contractor should ensure that the alignment is not disturbed afterwards.
10.11	Equipment and material, in case wrongly installed, shall be removed and reinstalled to comply with the design requirement at the contractor expense, to the satisfaction of BHEL / owner.
10.12	After identification of erection materials by BHEL at BHEL's store/ storage yard, it shall be the responsibility of the contractor to take delivery of materials from BHEL's store/ storage yard by contractor's own manpower and re-stack the leftover materials as per erection sequence at BHEL store at their own cost. The entire activities are to be carried out under supervision of BHEL's engineer.

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11.0	LABOUR AND LABOUR LAWS
11.1	Recruitment of Local Labour: Local labours shall be engaged for unskilled work. Preference may also be given for appointment of local people in semiskilled and skilled categories, if such suitable persons are available.
11.2	Labour Laws and Local Regulations: The Contractor shall abide by the prevailing labour laws and shall have to obtain labour license from the appropriate authority as per the law at his cost and shall indemnify the Purchaser about his financial and other obligations arising out of labours/workers employed by him. On obtaining the labour license, the Contractor at appropriate time shall submit certified photocopy of the same to the Purchaser. The Contractor and its sub contractor (s) shall possess valid PF & ESI Code.
11.3	Wages and Working Hours: The Contractor shall pay rates of Wages and observe hours and conditions of labour not less favourable than those established for the trade or industry in the district where the work is carried out but not less than the applicable minimum wages or by machinery of negotiation or arbitration to which the parties are organizations of employers and trade union's representatives respectively of substantial proportions of the employers and workers engaged in the trade or industry in the district. In the absence of any rates of Wages, hours or conditions of labour so established the Contractor shall pay rates of wages and observe hours and conditions of labour which are not less favourable than the general levels of wages and hours and conditions observed by other contractor whose general circumstances in the trade or industry in which he is engaged are similar.
11.4	Contractor to furnish return of labour employed: The Contractor shall, if required by the Engineer, deliver to the Engineer or to his office a return in such form and at such intervals as the Engineer may prescribe showing in detail category-wise number of classes of labour from time to time employed by the Contractor on the Site and such information respecting construction machinery as the Engineer may require.
11.5	The Contractor shall make his own arrangements for the engagement of all labour and provide on the Site in so far as the Contract otherwise provides, for the transport, housing, feeding and payment thereof. The Contractor shall, so far as is reasonably practical, having regard to local conditions, provide on the Site, to the satisfaction of the Engineer an adequate supply of drinking and other water for the use of his staff and labour.

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11.6	<p>Other Requirements:</p> <ul style="list-style-type: none"> a) The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulation or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor, or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by his sub-contractor(s), agents of employees. b) The Contractor shall not give, barter or otherwise dispose of to any person or persons any arms or ammunition of any kind or permit the same as aforesaid. c) The Contractor shall in all dealings with labour in his employment have a due regard to all recognised festivals, days of rest and religious or other customs. d) In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government, or the local municipal or sanitary authorities for the purpose of dealing with and overcoming the same. e) The Contractor shall at all times take all reasonable precautions to prevent any unlawful riotous or disorderly conduct by or amongst his employees and for the preservation of peace and protection of persons and property in the neighborhood of the Site against the same. f) The Contractor shall be responsible for observance by his sub-contractor(s) of the foregoing provisions.
12.0	QUALITY ASSURANCE PROGRAMME
12.1	INSPECTION & FIELD QUALITY ASSURANCE
12.1.1	Contractor shall carry out all activities conforming to the approved Field Quality Plan (FQP) & technical instructions as revised from time to time. 'Total Quality' shall be the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and quality standards. Contractor shall provide the services of quality assurance engineer as per the relevant clauses.
12.1.2	Preparation of quality assurance log sheets and protocols with customer / consultants / statutory authority, welding logs, NDE records, testing & calibration records and other quality control and quality assurance documentation as per BHEL engineer's instructions, is within the scope of work / specification. These records shall be submitted to BHEL / customer for approval from time to time.
12.1.3	The protocols between contractor and customer / BHEL shall be made for correctness of foundations, materials, procedures, at each stage of installation, generally as per the requirement of customer / BHEL. This is necessary to ensure elimination of errors and to avoid accumulation and multiplication of errors.
12.1.4	<p>A daily log book (with proper indexing) should be maintained by every supervisor / engineer of contractor, for respective area of work, on the job for detailing and incorporating alignment/ clearance / centering / levelling readings and inspection details of various equipment, etc. This log book shall be always accessible to BHEL engineers.</p> <p>High pressure welding (as applicable under the scope of this contract) details like serial number of weld joints, welders name, date of welding, details of repair, heat treatment etc. will be documented in welding log as per BHEL Engineer's instructions.</p> <p>Record of radiography (as applicable under the scope of this contract) containing details like serial number of weld joints, date of radiography, repairs, if any, re-shots etc shall also be maintained as per BHEL Engineer's instructions.</p>

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	Record of heat treatments (as applicable under the scope of this contract) performed shall be maintained as prescribed by BHEL.
12.1.5	The performance of welders (as applicable under the scope of this contract) will be reviewed from time to time as per the BHEL standards. Welders' performance record shall be furnished periodically for scrutiny of BHEL's Engineer. Corrective action as informed by BHEL shall be taken in respect of those welders not conforming to these standards. This may include removal/ discontinuance of concerned welder(s). Contractor shall arrange for the alternate welders immediately.
12.1.6	Only welders duly authorized by BHEL / customer / consultant after welder qualification test as per ASME Sec-Ix / AWS D1.1 (as applicable) shall be engaged on the work. All the welders shall carry identity cards as per the proforma prescribed by BHEL / Customer / Consultant.
12.1.7	Any re-laying or re-termination of cables / re-erection of instruments / recalibration of instruments etc. required due to contractor's mistake and found at any stage inspection shall be carried out by the contractor at no extra cost. Repair / rectification procedure to be adopted to make any job acceptable shall be subject to the approval of BHEL.
12.1.8	Weekly Quality Review Meeting at site shall be organised by BHEL to discuss quality issues and next weeks inspection plans. Site in-charge of the contractor along with QAEs of the contractor must be present in the meeting with closure report of the issues raised by BHEL in the previous meetings.
12.2	REQUIREMENT OF ISO 9001
12.2.1	BHEL: PSER is accredited with ISO 9001 certification and as such this work is subject to various audits to meet ISO 9001 requirements.
12.2.2	<p>The basic philosophy of the Quality Management System under ISO 9001 is to define the organizational responsibility, work as per documented procedures, verify the output with respect to acceptance norms, identify the non-conforming product / procedure and take corrective action for removal of non-conformance specifying the steps for avoiding recurrence of such non-conformities, & maintain the relevant quality records. The non-conformities are to be identified through the conduct of periodical audit of implementation of quality systems at various locations/stages of work. Suppliers / vendors of various products / services contributing in the work are also considered as part of the quality management system.</p> <p>As such the contractor is expected not only to conform to the quality management system of BHEL but also it is desirable that they themselves are accredited under any quality management system standard.</p>
12.2.3	BHEL reserves the right to carry out quarterly quality audits 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 & surveillance.
12.2.4	Quality audits / 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 no way limit the liabilities and responsibilities of the contractor in earning satisfactory performances of equipment / service as per specification.
12.3	MMEs / MMRs
12.3.1	Contractor shall ensure deployment of reliable and calibrated MMEs (Measuring and Monitoring Equipment). The MMEs shall have test / calibration certificates from authorised / Government approved / Accredited agencies traceable to National / International Standards. Re-testing / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MMEs so that work does not suffer when the particular equipment / instrument is sent for calibration. Also if any MMEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the

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	contractor to deploy proper item and recall i.e. repeat the readings taken by that instrument, failing which BHEL may deploy MME and retake the readings at Contractor's cost.
12.3.2	Contractor shall provide all the Measuring Monitoring Equipment (MMEs) required for completion of the work satisfactorily. These MMEs shall be of brand, quality and accuracy specified by BHEL Engineer and should have necessary calibration and other certificates as per the requirement of BHEL Engineer. Decision of BHEL Engineer regarding acceptance or otherwise of the measuring instruments / gauges / tools for the work under this specification, is final and binding on the contractor. BHEL shall give an indicative list of MMEs required for this work else where in this contract and to be made available by the contractor. The list will be reviewed by BHEL site as per the requirement of approved FQPs and the contractor shall meet any augmentation needed wherever required.
12.3.3	It is the responsibility of the contractor to prove the accuracy of the testing / measuring / calibrating equipment brought by him based on the periodicity of calibration as called for in the BHEL's quality assurance standards/BHEL Engineer's instructions.
12.3.4	Re-work necessitated on account of use of invalid MMEs shall be entirely to the contractor's account. He shall be responsible to take all corrective actions, including resource augmentation if any, as specified by BHEL to make-up for the loss of time.
12.3.5	In the courses of erection, it may become necessary to carry repeated checks of the work with instruments recently calibrated, re-calibrated. BHEL may counter / finally check the measurements with their own MMEs. Contractor shall render all assistance in conduct of such counter / final measurements.
12.4	INSPECTION BY TS / FES / QA ENGINEERS OF BHEL UNITS / ENGINEERING CENTRES
12.4.1	Apart from day-to-day inspection by BHEL Engineers stationed at Site and Customer's Engineers, stage inspection of construction/erection activities and commissioning at various stages may also be conducted by teams of Engineers from Field Engineering Services of BHEL's Manufacturing Units, Quality Assurance teams from Field Quality Assurance, Unit/Factory Quality Assurance and Commissioning Engineers from Technical Services etc. Contractor shall arrange all labour, tools and tackles etc along with proper access for such stage inspections free of cost.
12.4.2	Any modifications suggested by BHEL FES and QA Engineers' team shall be carried out. Claims of contractor, if any, shall be dealt as per applicable clause of the contract, and provided such modifications have not arisen for reasons attributable to the contractor.
12.5	CONFORMANCE TO THE STATUTORY REQUIREMENTS (AS APPLICABLE UNDER THE SCOPE OF THE CONTRACT)
12.5.1	<p>The work to be executed under these specifications has to be offered for inspection, at appropriate stages of work completion, to various statutory authorities for compliance with applicable regulations. The work related statutory inspections, though not limited to, are as under:</p> <ol style="list-style-type: none"> 1) Inspectorate of Steam Boilers and Smoke Nuisance 2) Electrical Inspector 3) Factory Inspector, Labour Commissioner, PF Commissioner and other authorities connected to this project work. <p>The scope includes getting the approvals from the statutory authorities, which includes arranging for inspection visits of statutory authority periodically as per BHEL Engineer's instructions, arranging materials for ground inspection, taking rub outs for stamping of the pressure parts / pipes to be offered for inspection, submitting co-related inspection reports, documents, radiographs etc and following up the matter with them. Contractor shall also make all arrangements for offering the Products / Systems for inspection at location, as applicable, to the concerned authority.</p>

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12.6	STORAGE & PRESERVATION OF WELDING ELECTRODES & OTHER BHEL-ISSUED MATERIAL			
12.6.1	The contractor shall be responsible for storage & preservation of welding electrodes & other BHEL-issued materials as per BHEL Storage & Preservation Guidelines / Instructions.			
12.7	PENALTIES ON VENDORS / SUB-CONTRACTORS AGAINST NON-COMPLIANCE OF QUALITY NORMS			
Sl. No.	Nature of Non-compliance	Penalty for Domestic Project	Penalty for Export Project	Remarks
GENERAL				
12.7.1	Unavailability of QAE deployment schedule (duly approved by BHEL Site) matching with manpower requirement of approved L2 schedule	0.10%	0.10%	Against each RA bill
12.7.2	Unavailability of required number of QAE with proper experience & NDT certification as per the requirement of the Contract	Rs. 1,000.00	\$16.00	Per person per day
12.7.3	Not attending quality meeting of BHEL by nominated member of vendor / sub-contractor	Rs. 2,000.00	\$32.00	Per meeting
CALIBRATION				
12.7.4	Use of MMEs without valid calibration certificate	Rs. 1,000.00	\$16.00	Per equipment per instance
12.7.5	Use of NDT equipment, welding equipment without having valid calibration certificate / condition not as per requirement	Rs. 1,000.00	\$16.00	Per equipment per instance
WELDING & NDT				
12.7.6	Unqualified welders carrying out welding / tack welding	Rs. 1,000.00	\$16.00	Per welder per instance. (Gatepass of the person shall be withheld)
12.7.7	Not using portable oven for welding consumables	Rs. 500.00	\$8.00	Per welder per instance. (The consumables in the oven shall be confiscated)
12.7.8	Not using electrodes pre-baked in baking oven	Rs. 500.00	\$8.00	Per instance. (The subject consumables shall be confiscated)
12.7.9	Not using welding consumables of approved make & not using correct type of electrode as per approved EWS / Drawing / WPS	Rs. 1,000.00	\$16.00	Per instance. (The subject consumables shall be confiscated)
12.7.10	Non-removal of welding slag and spatters after welding	Rs. 500.00	\$8.00	Per joint

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12.7.11	Not using NDT equipment as prescribed in the manual / FQP / guidelines / Contract	Rs. 1,000.00	\$16.00	Per equipment per instance
12.7.12	Welder doing welding without valid job card	Rs. 500.00	\$8.00	Per instance
12.7.13	Discrepancy observed in the weld joints identified by BHEL / Customer for RT vs RT film offered	Rs. 2,000.00	\$32.00	per joint

MATERIAL MANAGEMENT

12.7.14	Non-maintenance of grid pillar marking	Rs. 200.00	\$3.00	Per location week
12.7.15	Mismatch of location of material in store area w.r.t. location mentioned in stock register	Rs. 500.00	\$8.00	Per instance
12.7.16	Non-compliance of Preservation of material as per storage & preservation manuals	Rs. 1,000.00	\$16.00	Per equipment
12.7.17	Not offering received material for verification within stipulated time as per contract	Rs. 500.00	\$8.00	Per instance

PAINTING & ALLIED WORKS

12.7.18	Not using primer / paints of approved make and as per Specifications	Rs. 1,000.00	\$16.00	Per instance
12.7.19	Painting without proper surface preparation as per approved schedule / drawing / FQP	Rs. 500.00	\$8.00	Per instance

PROTOCOLS & LOG SHEETS

12.7.20	Delay in preparation of Protocols / Logsheets as per approved FQP within 3 days of completion of checks	Rs. 200.00	\$3.00	Per protocol per day delay
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INSPECTION OF BOUGHT-OUT ITEMS / CONSUMABLES

12.7.21	Delay in offering inspection of Bought-out Items / Consumables / Aggregates (for items which need site inspection as per approved QP) within 3 days of receipt of material at site	1% of the item value of the LOT	1% of the item value of the LOT	per item per day delay after receipt of material
12.7.22	Delay in submission of required documents (viz. Invoice, Inspection Release Note, COC, MDCC, MTC as the case may be) of Bought-out Items (shop inspection items / consumables) with in 3 days of receipt of material at site.	1% of the item value of the LOT	1% of the item value of the LOT	per item per day delay after receipt of material

NOTE: Any non-conformity requiring dismantling / rework, attributable to vendor / sub-contractor, shall be penalised at a rate mentioned above or cost to BHEL, which ever is higher.

13.0	HEALTH, SAFETY & ENVIRONMENT
13.1	Refer Document Number: HSEP:14-SGD Rev.: 00, DATE: 25.04.2019 Document Title: Health, Safety and Environment Plan for Site Operation by Subcontractors for Sagardighi.
14.0	T&P TO BE PROVIDED BY BHEL
14.1	BHEL will provide following crane free of cost on sharing basis –

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	<ul style="list-style-type: none"> • Mid Range (Crawler crane of capacity class 250 T or above) for structural work of Conveyor Galleries, Trestles and Transfer Point area, which can not be done using 150T Crane, free of cost on sharing basis. BHEL decision in this regard will prevail. <p>The above crane to be provided by BHEL shall be shared by various other contractors and the contractor shall plan his activities accordingly in co-ordination with BHEL site engineers.</p>
14.2	Crane returned in defective/damaged condition (defect/damage occurred during use due to negligence of contractor) shall be rectified by contractor promptly to the full satisfaction of BHEL engineer failing which suitable recovery along with BHEL overheads will be made from contractor's bills/ dues.
14.3	BHEL shall provide fuel, lubricants, mobil, cardium compound, hydraulic oil, air and fuel filter etc. on free of cost basis for this crane. Regular maintenance and Break down maintenance (not attributable to the contractor) of the BHEL crane is excluded from the scope of the contractor. However, necessary services as required for shortening/ extending of crane boom are included in the scope of contractor.
14.4	BHEL shall provide crane operator for this crane free of cost. However, the contractor shall bear only overtime charges, if any, for the operator provided by BHEL for services provided beyond the prescribed working hours of cranes. Such OT deployment shall be with prior intimation and consent of BHEL.
14.5	In case of exigency leading to crane operator not being available with BHEL, the contractor will have to deploy experienced crane operator after due permission of BHEL engineers. During such operation, the contractor shall have to take the full responsibility of safe operation of crane
14.6	In case of non-availability of high capacity crane to be provided by BHEL due to break down, major overhauls distribution pattern or any other reason, the contractor shall plan/ augment/ alter his activities to meet erection/ commissioning targets in consultation with BHEL and no compensation will be admissible on above ground.
14.7	Consolidation of ground and arrangement of sleepers/sand bag filling etc. for safe operation/ Movement of equipment including cranes/trailers etc. shall be the responsibility of the contractor at his cost.
14.8	In the event of BHEL issued crane the contractor and BHEL shall maintain joint protocol about the condition of crane taken from BHEL's custody and return to BHEL after use. The contractor shall not use this crane for purposes other than the scope of work given in this tender document. It is the responsibility of contractor to keep these crane always in working condition and ensure their safe return in working condition to BHEL subject to normal wear & tear.
14.9	After use of crane issued by BHEL the same shall be returned to BHEL in good working condition subject to normal wear & tear failing which recoveries at the book value of the item or the market rate prevailing at the time of returning the crane, whichever is higher shall be made from the payments due to the contractor from BHEL from this contract or from any other contract.
14.10	Depending upon the availability, BHEL / BHEL's Customer handling equipment and other plants may be made available to the contractor on payment of higher charges as fixed, subject to the conditions laid down by BHEL/Customer from time to time. Unless paid in advance, such hire charges, if applicable shall be recovered from contractor's bill /security deposit or any other payment in one installment.
15.0	LAND
15.1	Availability of land within plant boundary is very limited and the contractor has to plan and use the existing land considering the use of land by other Civil /mechanical/ electrical contractors and the storage of plant machineries and materials. The existing land shall be shared by all erections agencies. Land will be allocated with certain time frame and to the extent available/ considered necessary, and will be reviewed by BHEL depending upon the area availability.

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15.2	Land, as available, may be provided for labour colony by BHEL / WBPDC. The contractor should visit the site to assess the site condition regarding feasibility of use of land for the purpose. The contractor to construct temporary labour colony / hutment as per his requirements after obtaining approval of formalities from statutory body
15.3	The contractor shall provide minimum 1 no overhead water tank with minimum 20 nos. tap in their labour colony for drinking/washing etc purpose. One no cemented area of suitable width, length, with tap (s) for washing purpose etc. also to be provided.
15.4	The contractor shall provide minimum 20 nos of toilet in their labour colony.
15.5	The contractor will be responsible for handing back all lands, as handed over to him by BHEL/ WBPDC.
15.6	Area within plant premises for fabrication, batching plant, office, storage area etc. for construction purpose shall be provided as per availability free of cost.
16.0	WATER
16.1	Construction and drinking water, if available, will be provided to the contractor free of cost at one location within 700 m from the work area. However, additional water source if required may have to be arranged by Bidder as per requirement of work at site with necessary permission from BHEL/WBPDC within the quoted price.
16.2	Further necessary network for construction & drinking water system shall be done by the bidder at his own cost.
16.3	Contractor should arrange on their own, drinking water in their labour colony.
16.4	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.
16.5	Contractor will have to arrange for storage of water to meet the day-to-day requirement. Bidder will ensure adequate supply of construction water to meet the requirement of water during major concreting.
16.6	The availability of water (construction as well as drinking) in project site 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.
17.0	ELECTRICITY
17.1	CONSTRUCTION POWER & GENERAL ILLUMINATION NETWORK BHEL Shall Provide Construction Power free of charges at 415V level at Two points within 500 M from his work place and bidders has to make his own distribution arrangement to draw electricity. Provision of suitable temporary lights at different floors/working areas for execution of the work & safety of workmen shall be provided by the vendor, within the quoted rate. The illumination should be such that minimum illumination requirement as specified by Indian standards for general illumination is maintained.
17.2	GENERAL 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 Indian 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.

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17.3	The bidder shall have to provide earth leakage circuit breaker at each point wherever human operated electrical drives/ T&Ps are deployed.
17.4	The power supply will be from the available grid. 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.
17.5	Bidder will have to arrange sufficient illumination at their own work areas.
17.6	The contractor should ensure that the work in critical areas is not held up in the event of power breakdown and during power break down, vendor will use their own DG set for continuation of job. If the progress of work is hampered owing to interruption in power supply, it will be the responsibility of the contractor to step up the progress of work so that overall progress of work is not affected.
17.7	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.
17.8	Though the construction power is provided free of charge, it is the responsibility of the vendor to ensure efficient utilization of the electricity. Suitable audit shall be carried out jointly by BHEL & vendor on a periodic basis to ensure the same. In case at any point of time it is found that construction power is being used inefficiently or for any other purpose than the intended use, the vendor will be suitably penalized as per the provision of the contract. The maximum penalty that can be imposed on the vendor shall be limited to one month's electricity charges (as will be obtained from the energy meter at drawal point) per incident of inefficient use or misuse.
18.0	PROCUREMENT OF CEMENT & CONSUMABLE
18.1	Although RMC will be provided free of cost by BHEL for execution of PCC & RCC work but for all other works such as brick masonry, plastering etc, Cement required are to be procured by the vendors directly from the manufacturer or their authorized dealers. In case of procurement from dealers, Certificate of dealership to be submitted for approval. Approval of manufacturer to be taken from BHEL / WBPDCCL before placement of order.
18.2	All consumables, like gas, electrodes, chemicals, lubricants etc. required for the scope of work, shall be arranged by the contractor at his cost unless otherwise specifically mentioned in the contract.
18.3	All consumables to be used for the job shall have to be approved by WBPDCCL/ BHEL prior to use.
18.4	In the event of failure of contractor to bring required quantity of cement & necessary consumables, BHEL may arrange for the same at the risk and cost of the contractor. The entire cost towards this along-with overhead shall be paid by the contractor or deducted from the contractor's bills.
19.0	TEST CERTIFICATES
19.1	Necessary test certificates of all materials supplied by contractor are to be produced to BHEL prior to use of those materials.
19.2	Arrangement of testing at Site to be kept for cement (Initial & Final setting Time & compressive strength)
20.0	DELETED
21.0	PROJECT MANAGEMENT/ CONSTRUCTION MANAGEMENT
	To meet the need of construction management at site, contractor shall provide the following services within quoted / accepted rates.
21.1	PLANNING & MONITORING
21.1.1	The bidder shall prepare detail construction schedule (L2-/L-3) as per completion dates given in this document. This schedule must include all milestone and key activities for each sub-systems / 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

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	least weekly basis to start with and on daily basis whenever required by BHEL. Successful bidder will submit L-2 Schedule within one week from the date of issue of LOI.
21.1.2	The bidder shall also prepare progress report indicating progress on key activities, management summary for critical activities, 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.
21.1.3	Bidder will have to install 03 (three) no PC (multimedia PC work station having minimum Intel Corei5 processor, 3.6 GHZ or above, 500 GB HDD, 4 GB RAM, 100 MBPS LAN card or above of HP/LENOVO/DELL or equivalent make with Windows 7 or higher O/S with TFT/LCD Monitor of minimum 21" & required software like MS Office 2010 Professional, AutoCAD 2010, PageMaker (7.0 etc), ADOBE PDF CREATOR (version 10.0), DVD Writer with 01 (One) no. laser jet printer compatible for A3 size printing (ink/cartridge for which to be supplied as and when required, for estimation of the bidder, the consumption may be assumed as 1 cartridge per 2 month) & 01 (one) no laser jet printer compatible for A4 size printing (ink/ cartridge for which to be supplied as and when required, for estimation of the bidder, the consumption may be assumed as 1 cartridge per month) with an UPS of APC or Microtech make for power backup at places, as per instruction of BHEL for exclusive use of BHEL. Besides these, 01 (one no. Data Card (Modem) with minimum 3.5 Mbps speed having minimum 10 GB monthly Plan of any reputed Service Provider to be provided by the Vendor per Computer at his cost till work completion for exclusive BHEL use. These PCs/Printers/UPS/Modem shall remain contractor's property and they will be allowed to be taken out after total completion of the site works & placement of Final Bill. The contractor shall provide data/information etc in prescribed formats for periodical updating of the progress reports, material management reports, updating of network pertaining to the contractor's scope of work etc. The contractor shall also provide 03 (Three) nos. computer operator and 05 (Five) nos. support service staff for miscellaneous service for BHEL's use at Site/Kolkata for reconciliation, progress review & day-to-day planning & documentation purposes etc. This facility to be provided as per instruction of BHEL Construction Manager and must be effected within Ten days from the date of written instruction issued by BHEL site Authority and the facilities shall be extended till completion of site works or as decided by BHEL. If contractor fails to provide computer/ printer or personnel as per requirement, for a continuous period of fifteen days or more, BHEL shall have the right to deduct the amount as per following rates on pro-rata basis, from contractor's RA bill or any other dues.
21.1.3.1	@ Rs 18,000/- (Eighteen thousand)/ month for each computer operator.
21.1.3.2	@ Rs 8,000/- (Eight thousand)/ month for each computer.
21.1.3.3	@ Rs 4,000/- (Four thousand)/ month for each printer .
21.1.3.4	@ Rs 13,000/- (Thirteen thousand) / month for each Support service staff.
21.1.3.4	In the event of the contract period getting extended beyond the stipulated time for reasons not attributable to the bidder. The bidder will be reimbursed at the above mentioned rate or actual +15%, whichever is lower, if the services of operator/ service staff are being used by BHEL.
21.1.4	The contractor's site office must have facilities of communications like E-mail, and telephone with STD facility within a month from LOI.
21.2	PROGRESS REPORTING
21.2.1	The bidder shall submit daily, weekly and monthly progress reports for work force, materials reports, consumables (gases/electrodes) report and other reports as per pro-forma considered necessary by the 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.
21.2.2	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 the slippage or lost time, so that further

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	works again proceed as per the original program and the slippages do not accumulate and effect the overall program.	
21.2.3	The daily work force reports shall clearly indicate the work force deployed, category-wise specifying also the activities in which they are engaged.	
21.2.4	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/revise his work program to meet the overall requirement.	
21.2.5	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.	
21.2.6	During construction contractor shall take an average forty colour digital photograph / slides (indicating date) each month (not less than five per week) of the works during progress. In case of failure in providing such photograph in each month, an amount of Rs. 20,000/- per month shall be deducted from contractor's RA bill.	
21.2.7	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.	
21.3	SITE ORGANIZATION	
21.3.1	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 of LOI.	
21.3.2	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.	
21.3.2.1	Planning engineer	1 no.
21.3.2.2	Site supervising engineer and supervisors for enabling job viz., leveling grading, Roads & drains job.	One no Engineer & One no supervisor
21.3.2.3	Qualified safety officers with assistants (exclusive for safety supervision for project jobs).	Officer – 2 nos. Safety Steward - 2 nos.
21.3.2.4	Site supervising engineer and supervisors for supervision of Civil work.	Two Engineers Six Supervisors
21.3.2.5	Site supervising engineer and supervisors for supervision of Structural work.	Two Engineers Six Supervisors
21.3.2.6	Engineer & Supervisors for quality inspection.	Two Engineers. Two Supervisors.
21.3.3	Deputation of above man-power shall be jointly decided at site in line with construction schedule.	
21.3.4	Engineer/ supervisor for other functions like store & purchase, material management, planning, finance, administration etc are to be provided as per site requirement and not considered above.	
21.3.5	In the event of non deputation of engineer / supervisor by the bidder as per above agreed schedule, BHEL shall reserve the right to deduct Rs 70,000 per man-month	

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	for engineer, Rs 50,000 per man-month for the supervisor/ safety officer and Rs. 35000 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.
21.3.6	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.
21.3.7	In addition to above, a well experienced qualified engineer to be designated, as 'Project Manager', 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.
21.3.8	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.
21.3.9	The contractor should also submit network programs for the construction/erection of various items. These networks shall show the customer / BHEL hold points (CHP), which have to be cleared by customer/ BHEL, or their authorized representatives before further erection can take place. These programs for the construction/erection would clearly identify responsibilities of the contractor and customer/ 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 of LOI.
21.4	CONSTRUCTION MANAGEMENT
21.4.1	Based on the approved program, the contractor shall submit a program of construction / erection for implementation. These programs would be amplified showing start of erection and subsequent activities and shall form the basis for site execution and detail monitoring. The three monthly rolling program with the first month's program being tentative based on the site condition would be prepared based on these programs. The contractor shall also be involved along with WBPDCCL / BHEL to tie up detailed resources mobilization plan over the period of the contract matching with the performance targets.
21.4.2	The program would be jointly finalized by the site in-charge of the contractor with BHEL / WBPDCCL's project coordinator as well as the site-planning representative. The program will also identify sequential events matching financial turnover.
21.4.3	<p>Site Instruction Book:</p> <p>The Contractor shall, on receipt of the Engineering-in-charge's order to take up any variation of works, supply at his own cost, Site Instruction Book which shall be kept at site of work under the custody of the Engineering-in-charge or his authorised representative. The Site Instruction Book shall have machine numbered pages in duplicate. Directions or instructions from the Engineering-in-charge to be issued to the Contractor, will be entered (in duplicate) in the Site Instruction Book (except when such directions or instructions are given by separate letter). The Contractor or his authorised representative shall regularly note the entries in the Site Instruction Book and also record thereon the action taken or being taken by him in complying with the said directions or instruction or any relevant point relating to the Work. The Contractor or his authorised representative may take away the duplicate pages of the Site Instruction Book for his own record.</p> <p>Cases of additional work/variation of scope of work shall not be entertained unless supported by entries in the Site Instruction Book or any written order.</p> <p>The first page of Site Instruction Book shall contain the following particulars:</p> <ul style="list-style-type: none"> i) Name of the work; ii) Reference to Contract No.; iii) Date of opening the Site Instruction Book; iv) Name and address of the Contractor; v) Name and address of the authorised representative (if any) of the Contractor;

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	vi) Signature of the Contractor's representative; vii) Signature of the Engineering-in-charge; viii) Date of recording final inspection; ix) Date of actual completion of Work; Entries vide (viii) and (ix) above shall be filled in on completion of work and before the Site Instruction Book is recorded in the office of the Engineering-in-charge concerned.	
22.0	TOOLS & PLANTS (TO BE PROVIDED BY CONTRACTOR)	
22.1	Tentative list of T&P to be deployed by contractor for successful completion of work is detailed below.	
22.2	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&Ps (except the T&P to be provided by BHEL) measuring (calibrated) instruments & handing equipments 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 requirements. However, contractor shall submit deployment plan of all T&P along with tender bid.	
22.3	In the event of any failure on the part of the contractor, 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, 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.	
22.4	Following major T&Ps to be arranged by contractor within the time as indicated against each T&P	
	Major T&P items	Mobilisation time (from the date of written intimation by BHEL to start the work)
	FOR CIVIL WORK	
22.4A.1	3 no Hydraulic Excavator / Poclain.	1st Within 30 days & balance as per requirement
22.4A.2	12 Nos. Tripper / Dumper (10 Cum Capacity)	1st 5 Nos. Within 30 days & balance as per requirement.
22.4A.3	2 nos. JCB.	1st Within 30 days & 2nd as per requirement.
22.4A.4	2 nos Dozer D80	1st Within 30 days & 2nd as per requirement.
22.4A.5	4 no Self Priming Dewatering Pump 5 HP (diesel / electric).	Within 30 days
22.4A.6	4 nos 10 HP Submersible Mono-Block Electric Pump (KOS-1040+ of Kirloskar or equivalent).	2 Nos. Within 30 days & balance as per requirement
22.4A.7	4 nos Self Priming Dewatering Pump 2/3 HP (diesel/ electric).	Within 30 days.
22.4A.8	One no. 5 HP sludge/sump/slurry electric pump.	As per requirement
22.4A.9	3 no Curing Pump – 1.5 / 2 HP	2 nos. within 30 days and balance 1 no. as per requirement

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22.4A.10	2 no. Hydra (12 / 14 T cap) (FX or TRX/NextGen series of “ESCORT” or equivalent make)	1 st within 30 days & balance as per requirement
22.4A.11	1 no Tractor of required capacity	Within 100 days.
22.4A.12	2 nos. Jack Hammers/ Pavement Breakers.	1st Within 45 days & 2nd as per requirement.
22.4A.13	1 no. Mobile batching plant (5/6 CUM per hr capacity)	On requirement
22.4A.14	6 nos Transit Mixer (5 / 6 cum capacity).	2 nos. within 30 days. Balance 4 nos as per requirement
22.4A.15	1 no Truck Mounted Concrete Pump with boom placer minimum 40 m Boom.	Within 50 days
22.4A.16	2 nos. concrete pump (20 cum/ hr min capacity & lift 70M)	1st within 30 days & 2nd as per requirement.
22.4A.17	Concrete Vibrator with adequate Needle (2 Nos. diesel driven + 4 Nos. electric driven)	1 no. diesel & 2 nos. electric driven within 30 days & balance within 60 days
22.4A.18	12 mm thick Ply Shuttering Board	As per site requirement
22.4A.19	Ply shuttering of minimum 18 mm thickness	As per site requirement
22.4A.20	Sheet Pile (Z / U shape) 3000 Sqm	1000 Sqm within 45 days & balance progressively as per site requirement.
22.4A.21	4 nos Reinforcement Bending Machine.	Within 30 days.
22.4A.22	8 nos Reinforcement Cutting Machine.	Within 30 days.
22.4A.23	MS scaffolding pipe / ACROW pipe preferably with cup lock system.	As per site requirement
22.4A.24	4 nos Power Driven Earth Rammer.	2 Nos. Within 90 days balance by 120 days
22.4A.25	1 no Vibromax (earth compacter).	Within 90 days.
22.4A.26	2 no Vibro Compactor – drum width 750mm.	Within 120 days
22.4A.27	1 no Compression Testing Machine (200 T cap).	Within 40 days
22.4A.28	2nos Total Station with adequate arrangement for surveyors..	1st Within 15 days & 2nd as per requirement.
22.4A.29	2 nos Auto Level & Staff.	Within 15 days.
22.4A.30	80 nos Concrete Cube Moulds.	40 nos. within 30 days & balance as per requirement.
22.4A.31	1 no of Small Trucks 5T for movement within site.	Within 30 days
22.4A.32	One nos Drinking Water Tank – 1000 lit.	Within 30 days.
22.4A.33	1 no Truck Mounted Water Tank (minimum 3000 lit) capacity with sprinkler arrangement.	Within 30 days.
22.4A.34	1 no 125KVA Electric Generator.	Within 40 days
22.4A.35	Civil Laboratory Equipments as per list attached in per relevant annexure of this TCC	Within 30 days.
22.4A.36	1 no. Concrete cutting power tools (DD2E of HILTI/BOSCH make)	As per site requirement
22.4A.37	1 no. Concrete core Cutting machine for drilling in concrete upto 300 mm dia along with diamond bits	As per site requirement.
22.4A.38	2 nos. electric winch with building hoist	As per site requirement

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22.4A.39	1 no. minimum 250 CFM capacity air compressor	As per requirement
22.4A.40	Portable Fire Extinguishers as below for civil & Strl Work Soda Acid – 4 sets. Dry Chemical Powder – 4 sets CO2 – 6 sets. Water & Sand Bucket (2 buckets in one stand) – 4 sets. Fire Hose with Nozzle (50 M length) – 4 sets.	1st set Within 30 days, balance within 90 days
22.4B	FOR STRUCTURAL WORK	
22.4B.1	One no. 150 T Crawler crane for structural erection.	As per site requirement / before start of structural erection
22.4B.2	3 Nos. 75 T capacity crawler crane	1 st within 60 days & balance as per requirement
22.4B.3	2 nos. crawler cranes 40/45T capacity crawler / tyre mounted crane	1 st within 50 days and 2 nd as per site requirement
22.4B.4	6 nos. hydra (12 / 14 T capacity) (FX or TRX/NextGen series of “ESCORT” or equivalent make)	1 st – within 30 days from start of work. Balance progressively as per site requirement
22.4B.5	3 nos. magnetic base drill machine (All Cut)	1 st before start of structural work & balance as per site requirement.
22.4B.6	2 nos. submerged arch welding machine	As per site requirement.
22.4B.7	8 nos. MIG machine	3 Nos. Before start of structural work balance as per site requirement
22.4B.8	50 nos. welding rectifier	20 Nos. before start of structural work balance as per site requirement.
22.4B.9	2 no. trailor – 15T	1 st - Within 100 days. 2 nd – As per site requirement.
22.4B.10.1	1 no. 30 T trailer	within 100 days
22.4B.10.2	6 nos. power driven HSFG bolt tightening m/c	3 nos. within 140 days & balance as per site requirement
22.4B.11	5 nos. torque tightening m/c. (2 no. Capacity up to 30 dia HSFG bolt tightening)	As per site requirement
22.4B.12	Sufficient quantity of steel ladders for approach up to the top of each erected column to be required during erection of columns.	As per site requirement.
22.4B.13	Power winch – 3T - 6 nos for structural erection	As per site requirement
22.4B.14	Power winch – 5T - 3 nos for structural erection	As per site requirement
22.4B.15	Power winch – 10T - 1 nos for structural erection	As per site requirement
22.4B.16	1 no ultra-sonography testing machine.	As per site requirement
22.5	T & P shown in the above mentioned list are minimum requirement. Mobilisation schedule as mutually agreed at site for major T&Ps, have to be adhered to and no change will be permitted. Further requirement will be reviewed time to time at site and contractor will provide additional T&P/ equipments to ensure completion of entire work within schedule/target date of completion without any financial implication to BHEL. Vendor will give advance intimation & certification regarding capacity etc prior to dispatch of heavy equipments.	

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22.6	All T&Ps 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.	
22.7	In the event of non mobilisation of any T&P by the successful bidder and as a result progress of work suffered, BHEL site 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
22.7.1	Hydraulic Excavator / Poclain.	Rs. 25000/- per week or part thereof
22.7.2	Tripper / Dumper (10 Cum Capacity)	Rs. 5000/- per week or part thereof
22.7.3	JCB.	Rs. 15000/- per week or part thereof
22.7.4	Dozer D80.	Rs. 50000/- per week or part thereof
22.7.5	Self Priming Dewatering Pump 5 HP (diesel / electric).	Rs. 5000/- per week or part thereof
22.7.6	10 HP Submersible Mono-Block Electric Pump (KOS-1040+ of Kirloskar or equivalent).	Rs. 10000/- per week or part thereof
22.7.7	Self Priming Dewatering Pump 2/3 HP (diesel/ electric).	Rs. 1000/- per week or part thereof
22.7.8	5 HP Sludge/sump/slurry electric pump	Rs. 5000/- per week or part thereof
22.7.9	Curing Pump – 1.5 / 2 HP	Rs. 500/- per week or part thereof
22.7.10	Hydra (12 / 14 T cap) (FX or TRX series of “ESCORT” or equivalent make)	Rs. 20000/- per week or part thereof
22.7.11	Trailer – 15T.	Rs. 20000/- per week or part thereof
22.7.12	Jack Hammers/ Pavement Breakers.	Rs. 5000/- per week or part thereof
22.7.13	Transit Mixer (5 / 6 cum capacity).	Rs. 25000/- per week or part thereof
22.7.14	Truck Mounted Concrete Pump with boom placer minimum 40 m Boom.	Rs. 50000/- per week or part thereof
22.7.15	Concrete Pump (20 cum / hr min capacity).	Rs. 20000/- per week or part thereof
22.7.16	Concrete Vibrator with adequate Needle	Rs. 2000/- per week or part thereof
22.7.17	12 mm thick Ply Shuttering Board(9000 sqm)	Rs. 1000/- per week or part thereof
22.7.18	Ply shuttering of minimum 18 mm thickness(225 sqm)	Rs. 1500/- per week or part thereof
22.7.19	Sheet Pile (Z / U shape) 1000 sqm	Rs. 40000/- per week or part thereof
22.7.20	Reinforcement Bending Machine.	Rs. 10000/- per week or part thereof
22.7.21	Reinforcement Cutting Machine.	Rs. 5000/- per week or part thereof
22.7.22	Scaffolding pipe / ACROW pipe preferably with cup lock system.	Rs. 10/- per M per week or part thereof
22.7.23	Power Driven Earth Rammer.	Rs. 500/- per week or part thereof
22.7.24	Vibromax (earth compacter).	Rs. 40000/- per week or part thereof
22.7.25	Vibro Compactor – drum width 750mm.	Rs. 10000/- per week or part thereof

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22.7.26	Compression Testing Machine (200 T cap).	Rs. 4000/- per week or part thereof
22.7.27	Total Station with adequate arrangement for surveyors..	Rs. 5000/- per week or part thereof
22.7.28	Auto Level & Staff.	Rs. 5000/- per week or part thereof
22.7.29	48 nos Concrete Cube Moulds.	Rs. 5000/- per week or part thereof
22.7.30	Small Trucks 5T for movement within site.	Rs. 1000/- per week or part thereof
22.7.31	Drinking Water Tank – 1000 lit.	Rs. 5000/- per week or part thereof
22.7.32	Truck Mounted Water Tank (minimum 3000 lit) capacity with sprinkler arrangement.	Rs. 3000/- per week or part thereof
22.7.33	125KVA Electric Generator.	Rs. 15000/- per week or part thereof
22.7.34	Civil Laboratory Equipments as per list attached in per relevant annexure of this TCC	Rs. 5000/- per week or part thereof
22.7.35	Concrete cutting power tools (DD2E of HILTI/BOSCH make)	Rs. 5000/- per week or part thereof
22.7.36	Concrete core Cutting machine for drilling in concrete upto 300 mm dia along with diamond bits	Rs. 5000/- per week or part thereof
22.7.37	Electric winch with building hoist	Rs. 5000/- per week or part thereof
22.7.38	Portable Fire Extinguishers as below Soda Acid. Dry Chemical Powder CO2. Water & Sand Bucket (2 buckets in one stand) Fire Hose with Nozzle (50 M length).	Rs. 1000/- per week or part thereof for any item
22.7.39	150 T Crawler crane for structural erection.	Rs. 50000/- per week or part thereof
22.7.40	75 T capacity crawler crane	Rs. 40000/- per week or part thereof
22.7.41	40/45T capacity crawler / tyre mounted crane	Rs. 25000/- per week or part thereof
22.7.42	Magnetic base drill machine (All Cut)	Rs. 5000/- per week or part thereof
22.7.43	Submerged arch welding machine	Rs. 7500/- per week or part thereof
22.7.44	MIG welding machine	Rs. 5000/- per week or part thereof
22.7.45	Welding rectifier	Rs. 5000/- per week or part thereof
22.7.46	Trailer – 15T	Rs. 20000/- per week or part thereof
22.7.47	Trailer - 30T	Rs. 30000/- per week or part thereof
22.7.48	Power driven HSFG bolt tightening m/c	Rs. 3000/- per week or part thereof
22.7.49	Torque Tightening m/c. (2 no. Capacity up to 30 dia HSFG bolt tightening)	Rs. 2000/- per week or part thereof
22.7.50	Power winch – 3T	Rs. 5000/- per week or part thereof
22.7.51	Power winch – 5T	Rs. 5000/- per week or part thereof

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22.7.52	Ultra-sonography testing machine.	Rs. 3500/- per week or part thereof
22.8	TEST CERTIFICATE FOR T&P All T&P, lifting tackles and pulling devices to be deployed by the contractor must bear valid / latest test certificates for their suitability, and the documents shall be preserved at site.	
23.0	INSURANCE	
23.1	BHEL shall arrange comprehensive MCE (marine cum erection) Insurance Policy for total project supply & services including balance of plant package covering transit risks & loss, destruction or damage during handling at Site, Storage, civil works ,erection, testing and commissioning up to trial operation completion of unit including theft, sabotage, fire, lightning and other natural calamities.	
23.2	Contractor shall report to BHEL in writing any damages to equipment/components on receipt, storing, and during withdrawal of the materials from stores, in transit to site and unloading at place of work and during erection and commissioning till trial operation completion including handing over. The above report shall be as prescribed by BHEL site management. Any consequential loss arising out of non-compliance of this stipulation will be borne by contractor.	
23.3	The contractor will take necessary precautions/ due care to protect the material at Project site, while in his custody from any damage/ loss till the same is handed over to BHEL/ customer at Project site. For lodging/ processing of insurance claim the contractor will submit necessary documents. BHEL will reserve the right to recover the loss from the contractor as detailed below in case the damage/loss is due to negligence/ carelessness on the part of the contractor. In case of theft of material under contractor's custody, the same shall be reported to police by the contractor immediately and copy of FIR and subsequently police investigation report shall be submitted to BHEL/ customer for taking up with insurance. However, this will not relieve the contractor of his contractual obligation for the materials in his custody.	
23.4	In case the damage/loss/theft of materials are attributable to negligence/failure in discharging the duties and obligations of the contractor, the expenses incurred for repair/replacement of such components in excess of the amount realized from the underwriters, limited to Normal Excess (Deductible Franchise) shall be recovered from the contractor.	
23.5	Other conditions of Insurance shall be as per relevant clause of GCC/SCC.	
24.0	MATERIAL HANDLING (BHEL ISSUED MATERIAL)	
24.1	Ready Mix Concrete, Reinforcement Steel, earthing Mild Steel rod and Structural Steel, will be issued free of cost by BHEL for use in the work covered in this contract.	
24.2	All other materials required for proper completion of job shall be provided by contractor from approved manufacturers/ suppliers and quoted rates shall be inclusive of this. Consignment of steel will be directly issued to the contractor as received by BHEL, on weightment basis from its supplier, as per delivery challan of supplier.	
24.3	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.	
24.4	Payment of all demurrages 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 demurrages 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	

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	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
24.5	It would be the responsibility of the contractor to sign on the delivery book acknowledgement slip of supplier / transport authorities etc. & to submit computerized account of all such consignments of materials received by them, daily to BHEL.
24.6	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.
24.7	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.
24.8	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.
24.9	Alternately Steel will be issued to the contractor from BHEL / customer's store within the plant premises, on weightment basis. Receipt from BHEL / customer's stores, handling/ transportation to work site, unloading etc will be under the scope of work within his quoted rate.
24.10	Open land (Limited area free from encumbrance), as available, shall be provided by BHEL on free of cost basis. Contractor shall maintain one centralized fenced store cum bar bending yard & fabrication yard (Area approx 10000 Sqm). Hard surfacing of this yard and all round drain shall be carried out by the contractor at his own cost within the quoted rate. Bidder shall make complete arrangement of necessary security personnel, to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent work. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering.
24.11	Excessive rusting of steel must be avoided. In case, due to any cause attributable to the contractor, such 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.
24.12	The contractor shall construct waterproof cement store (capacity minimum 100 MT) for storing and stacking of cement. CGI / Metal Sheet roofing (slope) with brick masonry wall, PCC flooring. 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 IS codes with proper illumination and locking arrangements.
24.13	Clodding of cement must be avoided. In case, due to any cause attributable to the contractor, such clodding of cement occur rendering the same unusable, then such quantity of cement shall be disposed immediately from the plant premises by the vendor.
24.14	No material shall be issued to the contractor except as those indicated above i.e Ready Mix Concrete, Reinforcement Steel, earthing Mild Steel rod and Structural Steel. 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.
24.15	The contractor shall maintain proper store account for all the BHEL issued materials and shall give copy once in a month of computerised reconciliation statement along with RA Bill for maintaining account for the BHEL issued material.
24.16	The contractor shall solely be responsible for the safety & quality of material after it is handed over and issued to contractor by BHEL.
24.17	Under any circumstances, BHEL issued materials shall not be taken out of the project site unless otherwise permitted by BHEL.
25.0	ISSUE OF MATERIALS (BHEL ISSUED MATERIAL)
25.1	ISSUE OF STEEL
25.1.1	The steel shall be issued to you free of cost on the following basis.

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25.1.1.1	Structural steel (MS plate, ISMB, angle, channel, chequered plate, stainless steel plate) – Weighment basis (unit – MT).
25.1.1.2	Reinforcement steel (TMT), MS earthing rod – Weighment basis (unit – MT).
25.1.2	<p>All the steel (MS plate, ISMB, angle, channel, chequered plate, stainless steel plate), reinforcement (TMT), MS earthing rod issued by the 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. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following/ applicable latest IS specifications.</p> <p>IS: 808-1964 - Beams, channels and angles. IS:1730-1961 – Plates. Reinforcements Fe-500 confirming to IS:1786 and MS earthing rod Grade-1 of IS:432 (part-I) & IS:1732</p>
25.1.3	In case any such sectional weights are not available in the above documents or can not be derived from above documents, the manufacturer recommendation shall be binding.
25.1.4	The steel issued to you shall be mainly in standard length and sections as received from the supplier. However, you shall be bound to accept the steel in length as available in the project no claims for extra payment because of issue of non-standard length will be entertained.
25.1.5	You shall satisfy yourself of the quality and quantity of the materials at the time of taking delivery from BHEL/ owner. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by you from BHEL/ owner stores.
25.2	You have to ensure that no lamination materials are taken over from BHEL. Fabrication wastage, if any due to above, shall not be compensated by BHEL.
25.3	The contractor shall submit to the engineer, a statement indicating estimated quantity of steel required at least two months in advance. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month. Failing which BHEL will not responsible to ensure supply of steel. Delay in completion if any for the same shall be in bidders account.
25.4	You have to note that all fasteners like MS/ HT/ HSFG bolts/nuts, lock nuts, washers etc shall be supplied by you as per applicable item of price schedule.
25.5	You have to note that cement/concrete and steel required for your enabling job like store/ site office etc shall be arranged at your own cost.
25.6	ISSUE OF READY MIX CONCRETE
25.6.1	Bidder has to give a receipt of quantity of Ready Mix Concrete at the time of taking of concrete at batching plant. For ensuring quantity, bidder may check the print out of concrete from batching plant.
25.6.2	The contractor shall submit to the engineer, a statement indicating estimated quantity of Ready Mix Concrete required at least two months in advance. In addition, the contractor shall also furnish the estimated requirement of Ready Mix Concrete during a month by the third week of the previous month. Failing which BHEL will not responsible to ensure supply of Ready Mix Concrete. Delay in completion if any for the same shall be in bidders account.
26.0	RETURN OF MATERIALS
26.1	RETURN OF STEEL INCLUDING SCRAP
26.1.1	All surplus steel and all wastage materials will be taken back on weighment basis.
26.1.2	Surplus, unused and un-tampered steel shall be sorted section-wise and returned separately at a place as directed by BHEL/ engineer within the project area; Return of such materials will not be entitled to any handling and incidental charges.
26.1.3	All wastage/ scrap (including wastage, unusable scrap) shall be returned to the stores on weighment basis and a receipt be obtained for material accounting purposes. Return of such material will not entitled the contractor to any additional cost due to handling, transportation and incidental charge.

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26.1.4	Scrap for reinforcement steel and structural steel shall be returned separately.		
26.2	RETURN OF READY MIX CONCRETE		
26.2.1	Under any circumstances Ready Mix Concrete will not be taken back. Bidder to plan accordingly for proper use of Ready Mix Concrete.		
27.0	CEMENT & STEEL CONSUMPTION AND WASTAGE		
27.1	REINFORCEMENT STEEL & MS ROUND CONSUMPTION		
27.1.1	The theoretical consumption of various diameter of reinforcement and 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.		
27.1.2	Actual consumption = Issue – Surplus.		
27.1.3	Surplus = Un-tampered and unused quantity of steel returned by the contractor to BHEL store along-with relevant documents.		
27.1.4	Wastage = Actual consumption – Theoretical consumption.		
27.2	REINFORCEMENT STEEL & MS ROUND WASTAGE		
27.2.1	Allowable wastage: (+3%) of the theoretical consumption shall be considered as allowable wastage.		
27.2.2	Wastage and scrap shall be as per actual weighment basis.		
27.2.3	Sl no	Reinforcement steel , MS round	Basis of issue & penal recovery
	R-1	Theoretical consumption (without considering wastage and scrap or loss)	Free
	R-2a	Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R-1) towards allowable wastage and return to BHEL Store.	Free
	R-2b	Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R-1) towards allowable wastage but not returned to BHEL Store.	Penal rate
	R-3	Wastage beyond three percent (+3%) of the theoretical consumption above (R-1).	Penal rate
27.3	STRUCTURAL STEEL CONSUMPTION		
27.3.1	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 you for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.		
27.3.2	Actual consumption = Issue – Surplus.		
27.3.3	Surplus = Untempered, unused, uncut quantity of steel returned by you to BHEL store.		
27.3.4	Wastage = Actual consumption – Theoretical consumption.		
27.4	STRUCTURAL STEEL WASTAGE		
27.4.1	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).		
27.4.2	Structural steel including SS plate		Basis of issue & penal recovery
	S-1	Theoretical consumption (without considering any wastage, scrap or loss) as per specification & drg.	Free

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	S-2a	Wastage limited to plus four percent (+4%) of aforesaid theoretical consumption (S-1) towards allowable wastage(including invisible wastage limited to 0.5%) and return to BHEL Store.	Free
	S-2b	Wastage limited to plus four percent (+4%) of aforesaid theoretical consumption (S-1) towards allowable wastage(including invisible wastage limited to 0.5%) but not returned to BHEL Store.	Penal rate
	S-3	Wastage beyond plus four percent (+4%) of the aforesaid theoretical consumption (S-1).	Penal rate
27.5	All wastage reinforcement, MS round and structural steel shall be returned to BHEL.		
27.6	READY MIX CONCRETECONSUMPTION		
27.6.1	The theoretical consumption of various grade shall be based on approved construction drawing. Quantity shall be calculated considering the volume of concrete as per approved drawing. No extra cost shall be payable to the contractor for any deviation in quantity of Ready Mix Concrete received from the Batching Plant and actual use at site.		
27.7	READY MIX CONCRETE WASTAGE		
27.7.1	Allowable wastage: +1.5% of the theoretical consumption shall be considered as allowable wastage.		
28.0	RECONCILIATION OF BHEL ISSUED MATERIALS		
28.1	You shall submit a reconciliation statement of cement and steel issued to you, once in a month. The same may be submitted alongwith RA bill.		
28.2	You shall properly account for the material issued to you as specified herein to the satisfaction of BHEL certifying that the balance material are available in your custody at site.		
28.3	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 from RA bill.		
28.4	The approved drawings/ bar bending schedules are to be considered for the purpose of reconciliation of materials.		
28.5	Reconciliation of steel shall be done on total issue & consumption basis.		
29.0	RECOVERY OF MATERIAL		
29.1	If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA bill at the penal rate stipulated below.		
29.2	PENAL RATE OF MATERIALS		
	Item	Penal rate (Rs)	
29.2.1	Reinforcement steel and MS round etc.	75,000 per MT.	
29.2.2	Stainless steel plate.	6,00,000 per MT	
29.2.3	Structural steel materials.	90,000 per MT	
29.2.4	Ready Mix Concrete		
	M - 7.5	6,500 per Cum	
	M - 10	7,000 per Cum	
	M - 15	7,850 per Cum	
	M - 20	8,600 per Cum	
	M - 25	8,700 per Cum	
	M - 30	8,900 per Cum	
	M - 35	12,300 per Cum	
	M - 40	12,600 per Cum	
30.0	CONSTRUCTION OF TEMPORARY OFFICE, STORES ETC		
	The contractor shall arrange at his own cost cleaning of area allotted, construction of his temporary office, stores, cement godown etc. and also the watch and ward of all the above. Materials required for the same shall be provided by contractor at his own cost.		
31.0	CIVIL LABORATORY AT SITE		

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	Contractor shall establish and maintain civil laboratory with necessary equipment (as per Annexure-A) for conducting relevant site tests, as required.	
32.0	CONSTRUCTION SCHEDULE	
32.1	Entire work shall be carried out in accordance with the construction schedule given below, within the stipulated completion period. Within 30 days of LOI, the contractor shall discuss with BHEL site engineer & furnish the (L-3) construction schedule indicating all milestones on the basis of major activities and get it approved from BHEL Engineer.	
32.2	Schedule for major construction activities covered under the scope of work is as below.	
	Major activity description	Completion schedule from the date of start of work as certified by BHEL engineer at site.
32.2.1	Wagon Tippler Complex up to GL	Within 16 Months
32.2.2	MCC Building Readiness	Within 18 months
32.2.3	Tunnel	Within 20 Months
32.2.4	Crusher House Civil & Structural Work	Within 22 Months
32.2.5	Civil and Structural Work for conveyor system	Progressively within 23 Months
32.2.6	Civil & structural work of Ash handling and disposal system	Within 32 Months
32.2.7	All Other works.	Within 36 Months
32.3	The contractor shall plan his work in such a manner so as to meet the overall project schedule, in consultation with BHEL/ customer engineer.	
32.4	Contractor shall submit daily work program based on above construction schedule.	
33.0	COMPLETION PERIOD	
33.1	The entire work under this scope shall be successfully completed in all respect within 36 (thirty six months) from the date of start of work as certified by Construction Manager, BHEL.	
33.2	Contractor shall mobilise resources to start the work within 15 days from date of intimation to BHEL.	
33.3	However, actual date of start of work shall be reckoned based on certification of Construction manager,	
34.0	LIQUIDATED DAMAGE/ PENALTY	
34.1	Intermediate Milestones	
34.1.1	Liquidated damage shall be imposed for non achievement of Milestones as mentioned in Clause 32.2.1, 32.2.2 & 32.2.3 above. Applicable rate for LD deduction will be 0.10% per week of Contract Value, limited to maximum 2% of executable contract value plus applicable GST which will be withheld till completion of job and decision of deductible LD amount.	
34.1.2	Also for non achievement of further Milestones as mentioned in Clause 32.2.4, 32.2.5 & 32.2.6 above similar intermediate Milestone LD will be imposed at the rate of 0.10% per week of Contract Value, limited to maximum 3% of executable contract value plus applicable GST. This amount shall also be withheld till completion of job and decision of deductible LD amount.	
34.1.3	Amount already withheld, if any against slippage of milestones as per clause 32.2.1, 32.2.2, 32.2.3, 32.2.4, 32.2.5, 32.2.5 & 32.2.6 above, shall be released only if there is no delay attributable to contractor in achievement of Milestone as mentioned in clause 32.2.7.	
34.1.4	Amount to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld from the immediate next RA bills of scheduled milestone dates, in case milestone dates could not be achieved by the agency, and it is to be withheld @10% of RA Bill amount until the specified limit of LD amount is reached.	

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34.1.5	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.
34.2	Overall Completion
34.2.1	<p>In the event of any delay attributable to the contractor towards completion of job as per contract and handing over of facilities with acceptable standards/quality within the period as stipulated in the contract or any extension thereof, the contractor shall be liable to pay Liquidated damage (LD) to BHEL for the delay at the rate of 0.25% of the contract price per week plus applicable GST.</p> <p>This Liquidity Damage (LD) on account of delay in the completion schedule (36 months) and short fall of performance shall be limited to cumulative capping of 10% of contract price plus applicable GST.</p>
34.3	In all bidder's liabilities on account of LD (for non completion of overall scope of works and non achievement of intermediate milestones) shall be restricted to 15% of executable contract price plus applicable GST.
34.4	LD withheld amount shall be paid to the contractor if the overall completion schedule is achieved as per the contractual time period.
34.5	All other terms shall be as per the provision of GCC.
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 the Milestone.
35.0	CERTIFICATE TOWARDS COMPLETION
	The work under the scope of the contractor shall be deemed to have been completed in all respects only when so certified by BHEL/ customer. Decision of BHEL in this regard shall be final and binding on the contractor.
36.0	GUARANTEE
36.1	Even though the work will be carried out under supervision of BHEL, the contractor will be responsible for the quality of workmanship, quality of materials/ items and design for which the contractor is responsible.
36.2	<p>The contractor shall guarantee the work executed under the scope of the contract for a period of:</p> <p>18 (Eighteen) months from the date of completion of contract scope of work and handing over to BHEL/WBPDCL</p> <p style="text-align: center;">OR</p> <p>12 (Twelve) months from date of operation acceptance of CHP & AHP system whichever is earlier.</p> <p>Contractor shall rectify free of cost all defects due to faulty supply or work done. In case the contractor fails to repair/ replace the defective works within the time specified by the engineer, BHEL may proceed to undertake the repairs/ replace such defective works at contractor's risk and cost without prejudice to any other rights and recover the same from security deposit/ other dues.</p>
37.0	INTEREST BEARING RECOVERABLE ADVANCE/ MOBILISATION ADVANCE
	Not applicable for this tender.
38.0	OVER RUN CHARGES
	Not applicable for this tender.
39.0	REVISION ON ACCEPTED CONTRACT RATE
	Not applicable in this tender.
40.0	PRICE VARIATION CLAUSE
	Applicable as per the relevant clause of GCC.
41.0	EXTRA/ ADDITIONAL ITEMS OF WORK
	It shall be as per GCC.
42.0	SECURITY DEPOSIT, PERFORMANCE BOND & FINAL BILL
42.1	Security deposit shall be applicable as per relevant clause of GCC (Volume-IB).
42.2	Performance bond is not applicable for the tender.

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42.3	RELEASE OF SD BG AND FINAL BILL In addition to other provisions of tender regarding release of SD and final bill, following provisions shall also be governing to this tender.
42.3.1	For SD BG- further extension beyond date of acceptance of final bill will not be enforced if the following is fulfilled.
42.3.1.1	Contractor discharges their responsibility in r/o of submission of final bill alongwith absolute 'No Demand Certificate' and other documents as detailed below to the satisfaction of BHEL
42.3.1.2	Joint protocol of set of documents as submitted as detailed in below is certified by site & contractor's representative.
42.3.1.3	There is no negative value of the final bill (after release of SD BG) - site to certify the same before release of SD BG.
42.3.1.4	Contractor has returned the property belonging to BHEL- site to certify the same before release of SD BG.
42.3.1.5	Contractor has submitted joint protocol against 'Delay analysis', if applicable for delayed execution of job.
42.3.2	List of documents to be submitted & jointly protooled indicating acceptance of final bill by BHEL.
42.3.2.1	Final bill.
42.3.2.2	Measurement for final bill signed, jointly signed by BHEL & contractor's representative.
42.3.2.3	Statement having cumulative joint measurement for the contract, jointly signed by BHEL & contractor's representative.
42.3.2.4	Claim by contractor for refund of security deposit.
42.3.2.5	Jointly signed material reconciliation statement.
42.3.2.6	Statement of payment received from BHEL – Bill wise (Including RA/ PVC/ ORC/ rate revision/ extra work).
42.3.2.7	No claim certificate by contractor.
42.3.2.8	Clearance certificates wherever applicable, viz clearance certificates from customer, various statutory authorities, like Labour Department, PF Authorities, Commercial Department, etc.
42.3.2.9	Notarized Indemnity Bond as per prescribed format.
43.0	TAXES, DUTIES ETC
43.1	All taxes excluding GST & BOCW Cess (as specified elsewhere in the tender) but including, Charges, Royalties, any State or Central Levy and other taxes for materials if any obtained for the work and for execution of the contract shall be borne by successful bidder and shall not be payable extra by BHEL. Any increase of above at any stage during execution of contract, including extension of the contract, shall have to be borne by successful bidder contractor. Bidder's quoted/ accepted rates/ price shall be inclusive of all such requirements.
43.2	GST (as applicable) legally leviable& payable by successful bidder as per GST Law shall be paid by BHEL, extra. Hence, bidder shall not include GST (as applicable) in their quoted rates/ price.
43.3	Successful bidder shall furnish proof of GST registration with GSTN Portal covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by successful bidder on BHEL for this project / work.
43.4	Since GST on output will be paid by BHEL separately as enumerated above, bidder's quoted rates / price should be after considering the Input Credit under GST law at bidder's end.
43.5	TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills (RA bills) unless exemption certificate from the appropriate authority / authorities is furnished.
43.6	TDS under GST shall be deducted at applicable rates on gross invoice value from the running bills (RA bills)."

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43.7	Bidder shall note that GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred thereunder) wherein the 'Bill To' details shall encompass following. BHEL GSTN – Refer attached GSTN code table of BHEL. Name - BHARAT HEAVY ELECTRICALS LIMITED Address - Shall be intimated later. Specific details of BHEL GSTN, Name and Address as stated above, have been specified elsewhere in the tender.
43.8	Successful bidder to intimate immediately on the day of removal of goods (in case of any supply of goods) to BHEL along with all relevant details and send a scanned copy of Tax Invoice to BHEL through following communication mode for enabling BHEL to meet its GST related compliances. Portal address and Email address – Shall be intimated later. Specific details of above shall be intimated to successful bidder by BHEL at appropriate juncture.
43.9	In case of delay in submission of above mentioned documents on the date of despatch, BHEL may incur penalty / interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from successful bidder, in case such delay is not attributable to BHEL.
43.10	In case of raising any Supplementary Tax Invoice (Debit / Credit Note), successful bidder shall issue the same containing all the details as referred to in Section 34 read with Section 31 of GST Act & Rules referred there under.
43.11	Successful bidder shall comply with the Time Limit prescribed under the GST Law and rules thereof for raising of the Tax Invoice. If any supply of goods is applicable, successful bidder shall also ensure prompt delivery of goods after despatch.
43.12	Bidder shall note that in case GST credit is delayed / denied to BHEL due to delayed / non receipt of goods and / or Tax Invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons, not attributable to BHEL, GST amount shall be recoverable from successful bidder along with interest levied/ leviable on BHEL, as the case may be.
43.13	Successful bidder shall upload the invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the successful bidder along with interest levied / leviable on BHEL.
43.14	Way Bill: Successful bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract. Successful bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit / Way Bill, if required, shall be arranged by successful bidder and BHEL will not supply any Road Permit/ Way Bill for this purpose.
43.15	Any new taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period (including extension, if the same is not attributable to you), shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.
43.16	Benefits and / or abolition of existing taxes must be passed on to BHEL against new taxes, if any, proposed to be introduced at a later date.
44 .0	INTERIM PAYMENTS

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44.1	For all items of work as per Volume-III, Price Schedule, interim payment shall be limited to 95 % of the gross value of interim bill on item rate basis. The balance 5 % shall be payable on completion of guarantee period. However, this 5 %, retained from each RA bill, may be released against submission of a separate bank guarantee as per Performance Bank Guarantee format, to be kept valid till final bill & guarantee period, subject to (i) Receipt of certificate that all works are completed in all respects; (ii) Reconciliation of materials / T&P / IMTE; (iii) Completion of final bill formalities and (iv) handing over to BHEL / customer.
44.2	All admissible recovery / adjustments etc. shall be made from the interim payable amount.
44.3	Out of this 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 vendor 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.
44.3.1	0.7 % shall be paid on compliance of house keeping of vendor's working area and store/ office areas.
44.3.2	0.3 % shall be paid on compliance of general illumination of vendor's working area and stores, office area.
44.3.3	0.2 % shall be paid on compliance of applicable OHSAS requirement as per guidelines of BHEL/ PSER and as specified in the tender.
44.3.4	0.3 % shall be paid on compliance of applicable safety requirement as per guidelines of BHEL/ PSER and as specified in the tender.
44.4	BHEL site at its discretion may further split up the above percentages of break up or item rates of price schedules (vol-III, schedule 3 & 4) and effect payment to suit the site condition, cash flow requirement, according to the progress of work.
44.5	The contractor shall submit his running bill, once in a month at the end of each month. The RA bill complete in all respect, accompanied by BHEL engineers certified measurement sheets, jointly signed, will be paid after 45 days of submission of bill, subject to completeness and correctness. Income Tax at the prevailing rates on gross value of work done & applicable surcharge shall be deducted from contractor's bill, unless exempted by Income Tax Authority.
44.6	Applicable GST, which can be claimed at any point, shall be released to you upon compliance of following:
44.7	You declaring such Invoice in your GSTR-1
44.8	Receipt of Goods / services and Tax Invoice by BHEL
44.9	Confirmation of payment of GST thereon by you on GSTN Portal
44.10	Above is subject to receipt of goods / service and tax invoice thereof along with you declaring invoice in your return and paying GST within timeline prescribed for availing ITC by BHEL.
45.0	CONTRACT PRICE
45.1	The bidder shall quote their rates strictly in accordance with prescribed rate schedule of Volume-III (SCH-3&4)
45.2	The quantities of the various items mentioned in the BOQ cum price schedule (Volume-III) 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 the work executed under any part of the this contract including extra items, if any, but excluding any price variation, remains within +/- 15 % (fifteen percent) of the awarded price as per LOI / WO.
45.3	Bidders may note that total quantity payable against items of SCH-4 of Vol-III (required for execution at site of items of SCH-3 of Vol-III) will be restricted to final executed quantity of corresponding items of SCH-3 of Vol-III on completion of contract scope of work and at the time of final measurement.

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46.0	DESIGN OFFICE, FABRICATION DRAWING FOR STRUCTURAL STEEL WORKS
46.1	Design/engineering drawings of steel structures shall be issued to the contractor time to time by BHEL, contractor will prepare & submit the detail fabrication / shop drawing including tabulated form of bill of materials (BOM), joint calculations, for comments / approval of BHEL at the office of BHEL / PEM, Noida or BHEL / ISG Bangalore within 15 days of receipt. BHEL reserves the right to assess the capability of the agency to be deployed by contractor for preparation of such fabrication drawing, and prior approval from BHEL Engineering office at Noida, is required for appointment of such agency.
46.2	Contractor shall also appoint a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL
46.3	Since time is the essence of the contract, the contractor must indicate the location of their design office where from such detailed activities will be made operative.
46.4	Contractor shall submit progress report pertaining to fabrication drawing, by 7th of each month, section-wise cumulative bill of materials for which engineering drawing has been issued to them and status of fabrication drawing.
46.5	Contractor shall also submit progress report pertaining to review and approval of fabrication drawing, by 7th of each month.
46.6	It may be noted by the bidder that quality plan for erection of bolted structures will be highly stringent. Quality plan for structural works will be issued during execution stage upon approval of customer (WBPDCCL).
46.7	Bidder, at his own cost, shall supply electrodes required for fabrication, erection of structural steel as per specification and approval of BHEL.
46.8	Above mentioned clauses pertaining to consumption and wastage of structural steel applies to those materials issued by BHEL for site fabrication.
47.0	METHOD OF MEASUREMENT
47.1	Mode of measurement shall be as per relevant clauses of technical specification of this tender. In case the same is not available the relevant IS 1200 in conjunction of IS code 3385 shall be adopted. In case the same is also not available, the standard procedure adopted in CPWD shall be adopted. In case the same is also not available in CPWD, the measurement of the work done will be based on the mutual agreement between BHEL and contractor. In all the above cases, the interpretation of BHEL will be final and binding to the contractor.
47.2	Method of measurement for earth work shall be as per following:
47.3	Earthwork in excavation - Measurement shall be as per actual excavated quantity at site and as per clause 5.2.0 of Technical Specification, Section D, Sub-Section D1 of VOL-II B (Standard Technical Specification).
47.4	Earthwork in backfilling – Measurement shall be as per excavation quantity after deduction for concrete etc. Difference in final backfilled level with respect to initial ground level shall also be taken into account for deduction, if any, from excavation quantity.
48.0	OTHER TERMS
48.1	While bidder's scope includes deployment of all resources, like T&P, materials, consumables, manpower including supervision etc for proper completion of the subject job and no sub-contracting for execution of the job is allowed by BHEL. Depending on project's requirement and on prior acceptance of BHEL, bidder may associate agencies for deployment of skilled/ unskilled manpower only for site execution. Bidder should arrange all resources, like T&P, materials, consumables, supervision etc directly for the subject job.
48.2	All other term & conditions of this specification, not mentioned above shall be governed by the pertinent provisions of GCC, Volume-IB.

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ANNEXURE - A
LIST OF EQUIPMENTS FOR CIVIL SITE LABORATORY

SL NO	NAME OF TEST	NAME OF EQUIPMENT	SIZE OF EQUIPMENT	REF
CONCRETE TESTING EQUIPMENT				
1	Concrete Compressive test	Digital Compressive Testing Machine with 2000 KN capacity.	2000KN capacity	IS 2505
2	Concrete Cube casting	Concrete Cube Mould	150x150x150mm, minimum 48 Nos.	IS 10086
3	Workability of concrete	Slump cone	Standard, atleast 04 nos	IS 456
4	Initial & final setting time, Consistency of cement	Vicat Apparatus with desk pot	Standard	IS 5513
5	Cement mortar cube casting	Mortar Cube mould	70.6 x 70.6 x 70.6 mm, minimum 09 sets desired.	IS 10086
6	Cement mortar cube vibrating machine	Motorised vibration machine for cement testing	Standard	IS 4031
SOIL TESTING EQUIPMENT (LEVELLING & GRADING)				
1	Core Cutter test	core cutter apparatus	Rammer, 6 nos of std core cutter mould, dolly	IS 2720
2	Proctor density test	Std proctor Compaction apparatus	Standard	IS 2720
3	Moisture Content	Rapid moisture meter	Standard, atleast 04 nos	IS 2720
PROCESS CONTROL ACCESSORIES				
1	Hot air oven	Temperature range 50° C to 300° C	600x600x600mm (min.size)	
2	Electronic balance	2 nos	600g x 0.01g, 5g	
3	Physical balance	10 kg capacity	Weights upto 10 kg	
4	Thermometer	Temperature range 0° C to 150° C	Digital	
5	Measuring jars	2 nos set of each size	100ml, 200ml, 500ml & 1000 ml	
6	Gauging trowlers	2 nos	100mm & 200 mm with wooden handle	
7	Spatula	2 nos	100mm & 200 mm with long blade wooden handle	
8	Stainless steel scoop	2 nos	2 kg and 5 kg	
10	Digital pH meter	02 nos	0.01 mm least count,	
11	GI tray	02 nos	600x450x50mm, 450x300x40mm,	
12	Digital Vernier Caliper	01 nos	Least count 0.01	
13	Screw Gauge	01 nos	0.1 mm-10mm, Least count 0.05	
14	Digital paint thickness meter for masanory / concrete painting measurement	02 nos	150 micron range	
15	Standard Sand for Cement Test	3 type of sand	50 Kg each.	

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NOTE :

TENTATIVELY LIST OF SUPPLIERS / DESIGNERS IS PROVIDED HEREUNDER. HOWEVER, IN CASE THE BIDDER PROPOSES TO PROCURE ITEMS FROM OTHER SUPPLIERS, SPECIFIC APPROVAL SHALL BE REQUIRED TO BE TAKEN FROM BHEL / WBPDCCL AS PER APPROVED QP. FURTHER BIDDER MAY NOTE THAT LIST CONSISTS OF ONLY TENTATIVE VENDORS. SPECIFIC APPROVAL MUST BE TAKEN FROM BHEL / WBPDCCL PRIOR TO EXECUTION AT SITE.

SL. NO.	ITEM	PROPOSED SUB SUPPLIER	PLACE OF MANUFACTURING	REMARKS
1	CONSTRUCTION CHEMICALS - ADMIXTURES, PLASTISIZERS, RETARDERS WATER PROOFING COMPOUNDS GROUTS	SIKA INDIA LTO	-	
		CICO TECHONOLOGIES LTD	-	
		FOSROC CHEMICALS (I) PVT LTD	-	
		BASF	-	
2.	FALSE CEILING- GLASS REINFORCED GYPSUM SYSTEM, MINERAL FIBRE BOARD SYSTEM,PREPAINTED COIL COATED STEEL SYSTEM	SAINT GOBAIN	NEW DELHI	
		HUNTER DOUGLOUS	MUMBAI	
		TIGER STEEL	PUNE/MUMBAI	
		INTERARCH	NOIDA	
		LLOYD INSULATION	-	
		MG INDUSTRIES	FARIDABAD	
3	PAINT AND PAINTING SYSTEM	ARM STRONG	NEW DELHI	
		BERGER	-	
		SHALIMAR PAINTS	-	
		JENSON AND NICHOLSON	-	
		KANSAI NEROLAC	-	
		AKZO NOBEL	-	
4	COLOUR COATED SHEET (FOR COIL)	ASIAN PAINTS	-	
		UNION STEEL	KOREA	
		DONGBU STEEL	KOREA	
		BHUSHAN STEEL AND STRIPS LTD.	RAIGAD	
		ESSAR STEEL LTD	PUNE	
		NATIONAL STEEL AND AGRO	DHAR	
		JSW STEEL COATED PRODUCTS LTD	KAMLESHWAR	Formerly JSW ISPAT Steel Ltd
		BHUSHAN STEEL LTD.	SAHIBABAD	
		JSW LTD	THANE	
		TATA BLUESCOPE STEEL LTD	JAMSHEDPUR	*AL-ZN COIL FOR CLADDING

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5	PROFILERS FOR DECKING SHEETS	UNIMET PROFILES LIMITED	DHARUHERA	
		MULTICOLOUR STEEL INDIA LIMITED	GURGAON	
		ISOLLOYD	SOLAN	
		NATIONAL STEEL AND AGRO	DHAR	
		ERA BUILD SYS	RUDRAPUR	
		TATA BLUE SCOPE	PUNE	HINJEWARI WORKS
		TATA BLUE SCOPE	BHIWADI	
		PENNNAR INDUSTRIES	HYDERABAD	
		ALFA STEEL BUILDING SOLUTIONS	HOSUR	
6	PROFILERS FOR CLADDING SHEETS	MULTICOLOUR STEEL INDIA LIMITED	GURGAON	
		UNIMET PROFILES LIMITED	DHARUHERA-HARYANA	
		ERA BUILD SYS	RUDRAPUR	
		TATA BLUE SCOPE	PUNE	HINJEWARI WORKS
		TATA BLUE SCOPE	BHIWADI	
		PENNNAR INDUSTRIES	HYDERABAD	
		ALFA STEEL BUILDING SOLUTIONS	HOSUR	
		ISOLLOYD	SOLAN	
		NATIONAL STEEL AND AGRO	DHAR	
7	ELECTROFORGED GRATING	INDIANA GRATING	PUNE	
		PREMIER POWER PRODUCTS (CALCUTTA) PVT LTD	HOWRAH	
		GREATWELD	PUNE	
		BHOLA RAM STEELS	PATNA	
		KANADE ANAND UDYOG	THANE	
		PINAX STEEL INDUSTRIES	PATNA	
8	GI PIPES	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	

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9	PVC WATER STOP	DURON POLYVINYLS PVT. LTD	GURGAON	
		KANTA RUBBER	HYDERABAD	
		MARUTI RUBBER	NOIDA	
		JYOTI POLYVINYL	VADODARA	
		DEEP-JYOTI RUBBER PVT LTD	NOIDA	
10	BITUMEN ASPHALT	ALL GOVERNMENT REFINARIES	–	
11	PLASTIC, PVC PIPES	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	
12	BITUMEN IMPREGNATED FIBER BOARD JOINT FILLER, BITUMEN SEALING COMPOUND	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	
13	ALUMINUM COMPOSITE CLADDING	INDOMAX	ROORKEE	
		ALSTONE	DEHRADUN	
14	CERAMIC / VITRIFIED TILES	KAJARIA	-	
		SOMANY		
		SPARTEK INDIA	-	
		NITCO	-	
		ORIENT BELL	-	
		MARBITO		
		RESTILE	-	
		JOHNSON	.	
15.	ACID /ALKALI RESISTANCE TILES, AR BRICKS, ARCEMENT (POTASSIUM SILICATE BASED CEMENT MORTAR, PHENOLIC BASED RESIN CEMENT) AR BITUMASTIC	CARBORANDUM UNIVERSAL	CHENNAI	
		PELICAN	BHIWADI	
		CAMBRIAN	ALWAR	
		KERATECH	VADODARA	
		CHAMPION CERAMICS	CHAMPA	
		SUNSHINE CERAMICS	CHAMPA	
		MAHAKOSHAL POTTRIES	KATNI	
		PERFECT ACID WARE	JABALPUR	
		BABA BAIDNATH REFRACTORIES	PURULIA	

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16.	FIRE PROOF DOORS	NAVAIR INTERNATIONAL LTD.	NEW DELHI	
		SHAKTI MET DOOR	HYDERABAD	
		SUPER STEEL	DELHI	FOR SINGLE LEAF ONLY
		SIGNUM FIRE PROTECTION	NAGPUR	
		RADIANT SAFE DOORS	AHMEDABAD	
17	PARTICLE BOARDS, PLYWOOD, MDF	NOVAPAN	-	
		ECOBORD	-	
		BHUTAN BOARD	-	
		KITPLY	-	
		CENTURY	-	
		GREEN PLY	-	
		DUROPLY	-	
		MERINO	-	1
18	ALUMINUM SECTIONS	HINDALCO	-	
		INDALCO		
		BALCO (VEDANTA)	-	
		NALCO	-	
		JINDAL	-	
19	HIGH SOLID CONTENT LIQUID APPLIED URETHANE BASED ELASTOMERIC MEMBRANE FOR WATER PROOFING	STP	-	
		IWL INDIA LTD	-	
		LLOYDS	-	
		CICO TECHNOLOGIES LTD		
		MK PETRO	-	
20	SANITARY ITEMS	PARRYWARE	-	
		HINDWARE	-	
		SEABIRD		
		ORIENT		
		HINDUSTAN		
		CERA		
21	CP BRASS TAP AND OTHER SANITARY FITTINGS	GEM	-	
		PARKO	-	
		JAQUAR	-	
		MARC	-	
22	POLYTHENE WATER STORAGE TANKS	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	
23	NEOPRENE BELLOW STRAPS	CORI	CHENNAI	
		RESISTOFLEX	NOIDA	
		DWREN	KOLKATA	
24	RCC PIPES	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	

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25	POLYCARBONATE SHEETS	GE PLASTIC (SABIC)	–	
		BAYER (MAKROLON)	–	
26	ELECTRICALLY OPERATED HOIST (5T/2T)	CONSOLIDATED HOIST	SATARA	
		HERCULES HOIST	RA1GARH	
		GRIP ENGG	FARIDABAD	
		EDDY CRANE	PUNE	
		ARMSHEL	BANGLORE	
		CENTURY CRANE	PALWAL	
		ELECTROTHERAPY	HOWRAH	
		TRACTEL TRIFFER	PALWAL	
		ALFA CRANES	ALWAR	
		REVA HOIST	FARIDABAD	
27	STOP LOG GATES, TRASH RACK AND LIFTING BEAM	GENERAL MECHANICAL WORKS	BARODA	
		TRIVENI	NOIDA	
		MACMET	KOLKATA	
		PRADEEP STRUCTURES	HOWRAH	
		RED FAG	HYDERABAD	
		BSBK ENGG	NOIDA	
28	PTFE BEARING ELASTOMERIC BEARING	ALL CURRENT MORTH/RDSO APPROVED VENDORS		
29	FABRIC EXPANSION COMPENSATOR	KELD ELLENTOFT INDIA LTD	CHENNAI	
		EAGLE BURGMANN KE PRIVATE LTD	CHENNAI	
30	MINERAL WOOL FOR THERMAL INSULATION	ROCKWOOL INDIA LTD.	HYDERABAD	Subject to. carrying out K-value test at CBRI Roorkee / NTPC approved lab.
		ROCKWOOL INDUSTRIES	BHILA1	
		LAP INUS	MALANPUR (MP)	
		M1NWOOL	RAJANANDGAON	
		LLOYD INSULATION	BHILAI	
		U.P. TWIGA	BULENDSHAHAR	
31	GEOTEXTILE	GARWARE WALL ROPES Ltd	PUNE	
		TENCATE GEOSYNTHETICS ASIA	MALAYSIA	NON WOVEN
32	GEOMEMBRANE (HDPE LINER)	D P WIRES PVT. LTD	RATLAM	

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33	CI PIPES	BIS APPROVED SOURCES HAVING VALID BIS LICENCE		
34	COAL TAR ANTICORROSIVE COATING	RUSTECH	KOLKATA	
		PORWAL INDUSTRIES	RAIPUR	
		MP TAR	BHILAI	
		STP UNITED	JAMSHEDPUR	
35	ELASTOMERIC POLYURETHANE COATING	CIPY	PUNE	
		AMCHEM	NOIDA	
		E. WOOD. (APPLICATOR: PSL HOLDING, INDIA)	UK	
		CICO TECHNOLOGIES LTD	GURGAON	
36	HIGH PERFORMANCE MOISTURE COMPATIBLE CORROSION RESISTANT COATING SYSTEM	CECRI LICENSED SOURCES		
37	MS PIPES (IS:3589, WELDED PIPES)	BIS APPROVED SOURCES HAVING VALID BIS LICENCE		
38	PVC COATED CHAIN LINK FENCING & REINFORCED BARBED TAPE	SAUDAGAR MAC MAMMANLAL PVT LTD		
		MECAFERRI		

VOLUME-III PRICE SCHEDULE - REV-02	
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.	
TENDER NO. PSER:SCT:SDG- C2063:20	
PREAMBLE	
SL NO	DESCRIPTION
1	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.
2	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 guidance/tender purposes giving some idea of the work involved. The work is to be executed as per terms & conditions of the tender and actual drawings/documents, which shall be furnished during execution.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	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, 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.
5	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.
6	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.
7	In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based service 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.
8	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. The rates of unit rate/optional items shall remain valid till execution of the order, if the job/work is awarded to the bidder.
9	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 before submission of his bid/offer. No claim whatsoever due to lack of knowledge of site conditions shall be entertained after award of the work.

VOLUME-III PRICE SCHEDULE - REV-02	
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.	
TENDER NO. PSER:SCT:SDG- C2063:20	
PREAMBLE	
SL NO	DESCRIPTION
13	No splitting of the job is envisaged unless the same is specifically indicated in the TCC/Vol-1F. 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. The same modality shall be applicable for other item rate service contracts where item with same description is repeated in different schedules.
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 schedule as prescribed in the tender/BOQ cum Rate Schedule. PVC/escalation is not payable for these Non-scheduled items.
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. No idling charge whatsoever (either for labour or any other resources) is payable by BHEL for any reason whatsoever.
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-02			
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.			
TENDER NO. PSER:SCT:SDG- C2063:20			
SCH-1 : TOTAL PRICE			
SL NO	DESCRIPTION	PRICE SCHEDULE REF	TOTAL PRICE (IN INR)
1.0	TOTAL PRICE FOR CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.	SCH 2 - PRICE BREAK UP	<u>IN FIGURES:-</u>
			<u>IN WORDS:-</u>
2.0	NON-SCHEDULE ITEM For items not covered in Schedule 2, quote % above or below or at par the CPWD Schedule of rates 2018		
a)	Rate of complete item	_____ % above / _____ % below / at par of CPWD Rate Schedule 2018	
b)	Rate of supply of material at site only	_____ % above / _____ % below / at par of CPWD Rate Schedule 2018	
c)	Rate for execution complete excluding supply of materials.	_____ % above / _____ % below / at par of CPWD Rate Schedule 2018	
NOTE			
1.0	Bidder shall quote total price for SCH-2- 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 reckoned & will stand null & void.		
2.0	Bidder to note that total price at Sl No. 1 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's quoted total price of SCH-2 at Sl. No 1 above, 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.		
4.0	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 and its quantity after rounding off to upto 2 decimal places. However, RA bill payment shall be done after rounding off the gross amount to two decimal points. Any adjustment, if required, due to such methodology, will be effected / adjusted in final bill.		
5.0	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.4 above.		
6.0	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.		
7.0	Price format shall not be changed by bidder in any case and it may lead to cancellation of their offer.		
8.0	The quoted price shall be excluding GST including freight on FOR site basis.		
9.0	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.		
10.0	For payment of non schedule items, the rate shall be derived from CPWD Schedule - 2018.		

VOLUME-III PRICE SCHEDULE - REV-02		
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.		
TENDER NO. PSER:SCT:SDG- C2063:20		
SCH-2 - BREAK UP		
SL NO	DESCRIPTION	WEIGHTAGE
1.0	TOTAL SERVICE PART (SCH-3).	0.88869159
2.0	TOTAL SUPPLY PART (SCH-4).	0.11130841
3.0	TOTAL	1.00000000

VOLUME-III PRICE SCHEDULE - REV-02				
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TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
100	EARTH WORK: Earth work In excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.			
101	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 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level. [Measurement of excavation shall be paid as per actual quantity at site and as per clause 5.2.0 of Technical Specification, Section D, Sub-Section D1 OF VOL-II B)			
a	Depth from ground level but not exceeding 2 m	CUM	146978	0.01590226
b	Depth exceeding 2 m but not exceeding 4 m	CUM	121049	0.01637109
c	Depth exceeding 4 m but not exceeding 6 m	CUM	19050	0.00322464
d	Depth exceeding 6 m but not exceeding 8 m	CUM	11002	0.00233272
e	Depth exceeding 8 m but not exceeding 10 m	CUM	7295	0.00185863
f	Depth exceeding 10 m but not exceeding 15 m	CUM	4842	0.00141954
g	Depth exceeding 15 m but not exceeding 20 m	CUM	3295	0.00115921
h	Depth exceeding 20 m	CUM	2300	0.00094402
101A	Earth work in excavation (in restricted areas) in all types of soil including ash which can be excavated by any means for any depth below ground level including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), temporary Steel sheet piling for earth protection around foundation, dressing the bottom, all lifts, ramming / compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead up to 1 km, spreading / levelling of disposed materials etc all complete. Rate for providing temporary steel sheet piling is payable separately under item no A2516. [Measurement of excavation quantity as per clause 5.2.0 of Technical Specification, Section D, Sub-Section D1 OF VOL-II B)			
a	Depth from ground level but not exceeding 2 m	CUM	1500	0.00017041
b	Depth exceeding 2 m but not exceeding 4 m	CUM	1250	0.00017751
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1000	0.00018620
d	Depth exceeding 6 m but not exceeding 8 m	CUM	500	0.00011661
e	Depth exceeding 8 m but not exceeding 10 m	CUM	250	0.00007325
f	Depth exceeding 10 m but not exceeding 15 m	CUM	250	0.00008429
g	Depth exceeding 15 m but not exceeding 20 m	CUM	250	0.00010554
h	Depth exceeding 20 m	CUM	250	0.00012826
102	Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.	CUM	28434	0.00134816
103	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level. [Measurement of excavation shall be paid as per actual quantity at site and as per clause 5.2.0 of Technical Specification, Section D, Sub-Section D1 OF VOL-II B)			
a	Depth from ground level but not exceeding 2 m	CUM	100	0.00001256
b	Depth exceeding 2 m but not exceeding 4 m	CUM	100	0.00001508
c	Depth exceeding 4 m but not exceeding 6 m	CUM	100	0.00001809
d	Depth exceeding 6 m but not exceeding 8 m	CUM	50	0.00001086
e	Depth exceeding 8 m but not exceeding 10 m	CUM	50	0.00001248
f	Depth exceeding 10 m but not exceeding 15 m	CUM	100	0.00002746
g	Depth exceeding 15 m but not exceeding 20 m	CUM	200	0.00006596
h	Depth exceeding 20 m	CUM	200	0.00007696

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
104	Earth work in excavation upto any depth below ground level in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge. [Measurement of excavation shall be paid as per actual quantity at site and as per clause 5.2.0 of Technical Specification, Section D, Sub-Section D1 OF VOL-II B)			
a	Depth from ground level but not exceeding 2 m	CUM	50	0.00001640
b	Depth exceeding 2 m but not exceeding 4 m	CUM	50	0.00001968
c	Depth exceeding 4 m but not exceeding 6 m	CUM	50	0.00002360
d	Depth exceeding 6 m but not exceeding 8 m	CUM	50	0.00002831
e	Depth exceeding 8 m but not exceeding 10 m	CUM	50	0.00003255
f	Depth exceeding 10 m but not exceeding 15 m	CUM	50	0.00003582
g	Depth exceeding 15 m but not exceeding 20 m	CUM	200	0.00017193
h	Depth exceeding 20 m	CUM	200	0.00020058
107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following. [Measurement of Backfilling shall be paid as per excavation quantity after deduction for concrete etc.)			
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	152703	0.01252449
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	1000	0.00009074
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm loose thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following. [Measurement of Backfilling shall be paid as per excavation quantity after deduction for concrete etc.)			
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	50	0.00000390
108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials directly from excavation within a lead upto 1Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following. [Measurement of Backfilling shall be paid as per excavation quantity after deduction for concrete etc.)			
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	4420	0.00013884
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	1000	0.00003403
109	Extra over ST No. 101, 101A, 103 to 108 and 2401 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.			
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	77870	0.00067945
111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	1509	0.00192233
200A	CONCRETE WORK: Transportation from Batching Plant and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/ contract specification) and equipment for handling, transportation, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. (RMC WITH REQUIRED ADDITIVES/PLASTICIZER/SUPERPLASTICIZER 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)			
201A	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc.	CUM	314	0.00025699

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
202A	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	6427	0.00526012
203A	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	9	0.00000737
204A	Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.	CUM	328	0.00026845
205A	Design Mix cement concrete conforming to IS:456 & IS 10262-2009 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 all level below finished floor level, any shape, position or thickness etc all complete as per specification & drawing for the following.			
a	M 20 Grade	CUM	2025	0.00165734
b	M 25 Grade	CUM	15622	0.01278569
c	M 30 Grade	CUM	45	0.00003683
206A	Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 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 all complete as per specification & drawing for the following.			
a	M 25 Grade	CUM	6337	0.00622597
b	M 30 Grade	CUM	54	0.00005305
211A	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades (Supply of welded wire mesh, chicken wire mesh in contractor's scope)			
a	M 20	CUM	56	0.00013163
212A	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at all level or thickness, drains etc complete as per following.			
a	1:02:04	CUM	101	0.00011412
213A	Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs / trench covers, fins, lintels, chajjas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork / moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades. (Supply of cement for mortar in contractor's scope)			
a	M25	CUM	191	0.00083494
214A	Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete (with slump more than 125 mm) in water retaining / conveying structures and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.			
a	M25	CUM	12325	0.01210475
b	M30	CUM	218	0.00021410
215A	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	72	0.00007199
b	Reinforced cement concrete of all grades	CUM	302	0.00044427
216A	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	2	0.00000009
217A	Extra over and above St No 216A 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	2	0.00000001

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
218A	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	50	0.00001021
219A	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	429	0.00003743
220A	Transportation from batching plant and 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	2	0.00000164
223A	Cutting of existing concrete/ RCC slab (total thickness upto 250mm including floor finish & deck sheet if any) inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make or equivalent) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at all level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	50	0.00008896
200B	CONCRETE WORK: Transportation from Batching Plant and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/ contract specification) and equipment for handling, transportation, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. (CONCRETE WITH CEMENT, AGGREGGATES, REQUIRED ADDITIVES/PLASTICIZER/SUPERPLASTICIZER ETC. AND INCLUDING TRANSPORTATION, POURING/LAYING, COMPACTION AND CURING ETC. ALL COMPLETE IS IN THE SCOPE OF CONTRACTOR)			
201B	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc.	CUM	35	0.00012765
202B	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	714	0.00276297
203B	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	4	0.00001726
204B	Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.	CUM	37	0.00016427
205B	Design Mix cement concrete conforming to IS:456 & IS 10262-2009 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 all level below finished floor level, any shape, position or thickness etc all complete as per specification & drawing for the following.			
a	M 20 Grade	CUM	225	0.00106118
b	M 25 Grade	CUM	1736	0.00838780
c	M 30 Grade	CUM	5	0.00002481
206B	Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 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 all complete as per specification & drawing for the following.			
a	M 25 Grade	CUM	704	0.00337927
b	M 30 Grade	CUM	6	0.00002949
211B	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades (Supply of welded wire mesh, chicken wire mesh in contractor's scope)			
a	M 20	CUM	6	0.00002704
212B	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at all level or thickness, drains etc complete as per following.			
a	01:02:04	CUM	11	0.00004746
300	FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.			
301	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge..	SQM	49477	0.02197384

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
302	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge.	SQM	12152	0.00644668
ISG-303	Fairface Formwork with good quality water proof ply wood of minimum 18mm thickness and smooth surface for FLY ASH SILO UNLOADING SLAB (approx. elevation at 12-15m above ground level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights complete including chamfering of edges, deshuttering as per drawing,specification, and instruction of engineer in charge..	SQM	225	0.00050671
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.			
a	Upto 150 mm depth	Each	40	0.00000900
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	40	0.00001605
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	40	0.00002995
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	20	0.00002405
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	20	0.00003527
f	Pockets of depths more than 1500mm and upto 2000 mm depth	Each	20	0.00004675
ISG-306	Providing ,fixing & removing curved type Slip form shuttering including staging, propping (cost incl. of submitting supporting design & drawing and approval etc.) at all locations, heights and levels above or below ground complete as per specification and directions of Engineer In-charge	SQM	1859	0.00243307
400	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.			
401	Transportation from store, straightening, cutting, bending, placing in position at all level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1(material as per ST S 401 of SCH-4 of Vol-III) in concrete including cost of reinforcement steel, binding wire, labour, scaffolding etc. all complete as per specifications & drawings. (Cost on account of supply of mild steel reinforcement is payable seperately under ST S 401 of SCH-4 of Vol-III: Supply)	MT	10	0.00021305
402	Providing, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or Fe-500 conforming to IS:1786 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. [TMT Reinforcement steel will be issue by BHEL free of cost]	MT	4564	0.03822180
A402	Transportation from BHEL yard, straightening, cutting, bending, welding / binding in position of old cut piece TMT steel reinforcements confirming to IS:1786 including binding wire, labour for chair and other misc. works complete all as per bar bending schedule and as directed by Engineer. [Old cut piece TMT Reinforcement steel will be issue by BHEL free of cost]	MT	5	0.00005025
A406	Providing and fixing parallel threaded reinforcement couplers for mechanical splices of rebars (TMT/ CRS TMT) for concrete reinforcement including supply of couplers as per IS: 16172 made out of EN8D grade high strength alloy material , threading on rebars to be coupled with coupler, enlargement at connection by forging, protecting the prepared reinforcement bars, fitting & fixing of couplers under specialized supervision, quality tests & checks (for couplers and coupled joints) etc. all complete as per direction of Engineer in charge. The couplers shall match to the properties of rebars of grade equal to Fe 550 D of IS 1786. The cost shall include for all works and tests including mobilisation, demobilisation, loading/unloading of required plant/ machinery at site for threading & forging works, tools & tackles, labour & supervision, consumables and all incidental expenses for satisfactory execution of the work . (No deduction for labour and binding wire saved for not providing lap length shall be made).			
a	Coupler of class "H" for 16 mm diameter reinforcement bar.	EACH	10	0.00000082
b	Coupler of class "H" for 25 mm diameter reinforcement bar.	EACH	20	0.00000267
A407	Welding of lap joints of steel reinforcements of Corrosion Resistant thermo-mechanically treated reinforcement steel (High Strength Deformed steel bars) conforming to grade Fe-500 of IS: 1786 (Latest) including cost of welding electrodes, labour, tools and plants etc. complete as permitted and directed by Engineer. Measurement shall be done for the number of joints welded comprising of weld deposition of 2.5d length each on both side of lap joint (i.e total 5d length of weld deposition). Here, "d" is the diameter of reinforcement bar.			
a	For d=16 mm	EACH	5	0.00000021
b	For d=25 mm	EACH	5	0.00000033
A408	Straightening, cutting, bending of TMT steel reinforcement (Grade Fe-500D or 500EQR) of pile after breaking of pile head for embedment in pile cap, binding in position including cost of binding wire, labour, scaffolding, etc complete all as per specifications, drawings and as directed by Engineer (Breaking of pile head is not included in this item).	MT	2	0.00001256

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
500	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in scope of contractor)			
501	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	202	0.00002785
A510	Providing and laying Spray applied an average 40 mm thick two component Hydro flourcarbon(CFC free), polymeric M.D.I based closed cell(96-98% as perASTM D2856) multilayer, waterproof, insulated polyurethane foam, mixed in a ratio of 1:1 by volume with a nominal core density of 45-50 Kg/m3 as per ASTM D1622 , and a thermal conductivity of 0.023 W/m.k at 25 degree mean temperature as per ASTM C518/91 possessing waterproofing properties as per ASTM C-518/91 ,ASTM C-272 and complying to Fire resistance Class B2 as per DIN 4102. Top of insulation foam shall have a minimum 1.5mm thick sealer coat, which is a single component cold applied elastomeric waterproofing coating with >=500% elongation confirming to ASTM C836 applied by a spray/brush/roller in 2 coats. Loosely laid 120-150 GSM geotextile (non-woven polyester) shall be provided over the Elastomeric coating. Laying protective slope with 25mm average thick (thickness will depend upon the required slope and span of the building) M20 grade screed mixed with polypropylene fibers and admixed with integral liquid waterproofing compound conforming to IS: 2645. Green stage saw cutting on the screed will be done in panels (3mx4m) with grooves 10mmx10mm. Finally the groove will be sealed with suitable elastomeric sealant. Finally top shall be finished with 20mm thick 600x600 concrete roof tiles over 20mm thick cement: sand (1:4) bed mortar	SQM	6102	0.01226171
511	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	34529	0.00578451
513	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	471	0.00004110
600	JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.			
601	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.			
a	12 mm wide joints.	SQM	64	0.00003071
b	20 mm wide joints.	SQM	54	0.00003261
c	25 mm wide joints	SQM	54	0.00004938
d	50 mm wide joints	SQM	49	0.00009000
602	Supplying and installation of Dura board HD100 or its equivalent as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.			
a	12 mm wide joints.	SQM	54	0.00002620
b	20 mm wide joints.	SQM	54	0.00004250
c	25 mm wide joints	SQM	49	0.00004502
d	50 mm wide joints	SQM	49	0.00008594
603	Providing and applying polysulphide based sealant conforming to IS:12118 in joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:			
a	25mmX25mm	RM	64	0.00003339
b	50mmX25mm	RM	54	0.00005404
604	Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.			
a	10mm X 40mm	RM	64	0.00000335
b	12mm X 25mm	RM	54	0.00000245
c	20mmX25mm	RM	49	0.00000295
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)			
d	230 mm wide and 6 mm thick	RM	1969	0.00042264
700	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
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	31	0.00245175

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
702	Transportation from store to site, erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc. (material as per ST No. S 702 of SCH-4 of Vol-III:Supply) including welding, cutting, grinding etc. all complete. (Cost on account of supply of mild steel bolt assembly, nuts, lock nuts, washer, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc. payable separately under ST S 702 of SCH-4 of Vol-III: Supply)	MT	65	0.00181307
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	0.00003382
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc.	MT	2	0.00003189
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	kg	20	0.00000168
b	PVC pipes / conduits of all diameters	kg	20	0.00000471
c	UPVC pipes / conduits of all diameters	kg	20	0.00000784
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:			
i	HST M8	Nos	20	0.00000239
ii	HST M10	Nos	20	0.00000351
iii	HST M12	Nos	20	0.00000524
iv	HST M16	Nos	20	0.00000986
v	HST M20	Nos	20	0.00001960
vi	HST M24	Nos	20	0.00003743
f	Chemical Expansion fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc:			
i	HAS-E5.8 M8	Nos	10	0.00000197
ii	HAS-E5.8 M10	Nos	10	0.00000235
iii	HAS-E5.8 M12	Nos	10	0.00000282
iv	HAS-E5.8 M16	Nos	10	0.00000467
v	HAS-E5.8 M20	Nos	10	0.00000864
vi	HAS-E5.8 M24	Nos	10	0.00001220
705	Placing, locking and releasing of Vibration Isolation spring modules over the foundation at all elevations including providing all assistance under the supervision of the supplier, transportation from BHEL store, necessary staging, platforms, leveling, alignment etc. all complete.	Nos	15	0.00001577
707	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	6	0.00062532
800	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge. (Supply of cement is in scope of contractor)			
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	33	0.00057066
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	30	0.00109503

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	38	0.00156376
806	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	200	0.00016526
808	Providing Chemical Injection Grouting with Minimum, 12 mm dia (NB) threaded nozzle of suitable length over the surface and along the construction joint line in a grid pattern at a spacing not exceeding 1.5m c/c before concreting operation After the nozzles are fully set, neat cement slurry admixed with water soluble non-shrink polymer / monomer based chemical shall be injected through the net - work of nozzles with low pressure grout pumps at a pressure of about 2.0 Kg/Sqcm. Cement slurry shall be prepared by mixing cement with non-shrink polymer/monomer @ 500 gm/50 kg bag of cement and water, ensuring that Water: Cement ratio does not exceed 2 (by weight). Wetter the structure, lesser should be the water cement ratio. The property of the polymer/monomer should be such that when it is mixed with water @ 0.5% by weight of water, the viscosity of the resultant solution (water and polymer/monomer) should not be more than 1.2 centipoises. Plasticizing agent shall be added wherever required. The grouting shall be started at very low pressure and increased gradually to a required pressure. The grouting shall continue, till the hole refuses to take any further grout, even at an increased pressure. Applied pressure shall not be more than the designed strength of the concrete. After completion of grouting operation, the nozzles shall be sealed properly to the satisfaction of the Engineer	SQM	6230	0.01451933
900	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
904	Providing and 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.	SQM	220	0.00212844
906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	KG	130	0.00006840
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)			
a	Openable type	SQM	2004	0.00523871
b	fixed type	SQM	979	0.00171868
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallic protection etc. including preparation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.	Kg	1550	0.00100351
913	Transportation from store and fixing in position rolling shutter (as per ST No. S 913 of SCH-4 of Vol-III :Supply) of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides 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 IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath). (Cost against supply of rolling shutter assembly payable seperately under ST S 913 of SCH-4 of Vol-III: Supply)			
b	Mechanically Operated	SQM	9	0.00002398
c	Electrically operated	SQM	117	0.00034565
914	Providing and fixing PVC doors (25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	66	0.00014483

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
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.			
A	6mm thick clear float glass	SQM	20	0.00002899
d	6 mm thick wired glass	SQM	2388	0.00352132
f	4 mm thick ground glass	SQM	90	0.00010947
h	6 mm thick clear toughened safety glass	SQM	60	0.00013653
i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	100	0.00033872
917	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	140	0.00021951
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	525	0.00151854
1000	BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in scope of contractor)			
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	151	0.00092504
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	10	0.00007418
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.			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	2039	0.01429690
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 providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	SQM	43	0.00005523
A1012	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 1 Km including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	5	0.00000628
1100	DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in scope of contractor)			
1101	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.			
a	40mm thick	SQM	398	0.00013441
b	50mm thick	SQM	42	0.00001633
1200	PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in scope of contractor)			
A1201	Providing 20mm 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	9852	0.00239921
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	250	0.00005530
1203	Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete.	SQM	12775	0.00196182
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth surface all complete.	SQM	5368	0.00081685

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
1300	FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
1301	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	1183	0.00002777
1304	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	18093	0.00127242
1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	1110	0.00011361
1306	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	799	0.00023585
1316	Providing and applying 2 mm thick plaster of paris punning 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	598	0.00005249
1317	Providing and applying 3 mm thick white cement punning 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	1598	0.00022504
1319	Providing and applying two or more coats of Acrylic based weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification.	SQM	9747	0.00097208
1400	FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in scope of contractor)			
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges,glass strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	16025	0.00828459
1406	Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	175	0.00023970
1408	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	45	0.00006260
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	130	0.00034214
1414	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete. including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	105	0.00027560
1417	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturercomplete including 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			
b	10mm thick tiles In flooring	SQM	50	0.00005930
d	10mm thick tiles In skirting and dado upto specific height	SQM	12	0.00001467

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
ISG-1417A	Supply, erection, installation of Electric insulated flexible PVC sheet 6mm thick as per IS: 15625-2006	SQM	100	0.00009598
1418	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE' of BOSS Profile limited' or equivalent in flooring and skirting over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, cement slurry 3.3kg/sqm complete as per specification laid in pattern of following sizes			
b	600X600 mm	SQM	415	0.00047664
1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 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 IS:4441, 4443 & 4832 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	25	0.00004984
1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable.			
a	20mm thick	SQM	145	0.00060665
1427	Providing and fixing glazed designer ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses:			
b	7mm thick	SQM	140	0.00012701
1500	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
1502	Transportation from store, erection and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour (as per ST No. S 1502 of SCH-4 of Vol-III: Supply) over roof purlins for cast-in-situ roof slab as per relevant IS code and specification and shall serve as permanent shuttering to the roof slab including fixing (exposed surface facing operating floor shall be as per ST S 1502 of SCH-4 of Vol-III) of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans 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. (Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking and cost against supply of MS troughed metal sheet decking plate is payable seperately under ST S 1502 of SCH-4 of Vol-III:Supply).			
a	Span Upto 1800mm	SQM	4749	0.00214063
b	Span Exceeding 1800mm and upto 2500 mm	SQM	5747	0.00259048
1503	Providing and 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 IS codes and specification.	QUINTAL	68	0.00159243
1508	Transportation from store and fixing of Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets (as per ST No. S 1508 of Sch-4 of Vol-III: Supply) including fixing (exposed face & other face of sheet shall be as per ST S 1508 of SCH-4 of Vol-III) to supports / rails by concealed fixing system (Z Purlin) , corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting. [Measurement of Cladding sheet shall be the covered area of wall excluding openings. No separate payment shall be given for flushing at corner and around opening. Cost against supply of Permanent colour coated metal cladding with troughed M.S. sheets is payable seperately under ST S 1508 of SCH-4 of Vol-III:Supply).].	SQM	44131	0.02226033
1512	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.			
a	For insulation in Sandwich Cladding	SQM	200	0.00010715

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
ISG 1519	Transportation from store and erection double skin insulated wall cladding system (material as per ST No. S-ISG 1519 of Sch-4 of Vol-III: Supply). The steel sheet shall be fastened with nominal 40 µm zinc coated or nominal 25 µm Zinc-Tin alloy coated, Hex head, self-drilling screw as per AS 3566-2002 Class 3 fasteners with EPDM washer and also as per the requirement. The inner sheet shall be fixed to the structure by means of self drilling fasteners no. 12-24 x 25 mm conforms to AS: 3566 Class-3 long at valley. Sub- girts of size 50mm x 50mm x 50mm manufactured out of 16G GI (1.6mm GI) 'Z' shape would be fixed the inner sheeting on face side at runner locations and outer sheeting shall be fixed with the help of concealed compatible interlocking clips and wafer head zinc coated self drilling fasteners / screws 4.2 x 25mm long on to the sub-girts. The clips shall be concealed and no fasteners are to penetrate the external sheeting. (Cost against supply of sheet of double skin insulated wall cladding system is payable seperately under ST S-ISG 1519 of SCH-4 of Vol-III:Supply)	SQM	300	0.00026488
ISG 1520	Providing & fixing permanently at all heights and elevations, troughed sheets over roof purlins/beams/side runners etc for roofing and side cladding (internal & external) including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge. Quoted rate shall include cost of all labour, material, tools and plants, consumables, lead, lift etc complete. Fixing fire resistant and UV resistant polycarbonate translucent sheets of minimum 3MM thickness on roof & side cladding as per the specification and approved drawings and directions of engineer in charge	SQM	4231	0.00716838
1600	FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.			
1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	464	0.00142105
1607	Providing and Fixing 12mm thick Gypsum board plain/ mineral fibre based acoustic ceiling board in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per IS :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms- a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%.	SQM	165	0.00021840
1700	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.			
1704	Transportation from store and fixing galvanised MS down take pipes of 150 mm dia- Medium quality (material as ST No. S 1704 of SCH-4 of Vol-III: Supply)as per IS:1239(part-I) all complete. (Cost of galvanised MS downtake pipes payable seperately under ST S 1704 of SCH-4 of Vol-III:Supply)	RM	6204	0.00249279
1707	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.			
b	150 mm Dia	RM	70	0.00010536
1709	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.			
b	160 mm Dia	RM	20	0.00001194
1800	MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.			
A1801	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 275 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with well graded selected sand and compacting to 90 % 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	2755	0.00430769

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
B1801	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 150 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum and compacting to 90 % 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	402	0.00075428
1807	Anti termite chemical treatment of soil with Chlorpyrifos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment).	SQM	645	0.00012156
1821	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 suppression 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	500	0.00025871
2000	FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.			
2001	Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing of height of 600 mm conforming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, accessories etc. all complete. (Structural post shall be paid separately under item 2007)	RM	50	0.00011378
2003	Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2007)	RM	267	0.00064555
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.	MT	6	0.00052001
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	6	0.00060319
2100	WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
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 - 15mm nominal bore.	NOS	10	0.00001031
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	10	0.00000733
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:			
a	25mm nominal bore.	NOS	10	0.00001140
b	50mm nominal bore.	NOS	10	0.00002740
A2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal/external works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:			
a	15 mm nominal bore.	RM	25	0.00001023
b	20 mm nominal bore.	RM	25	0.00001130
c	25 mm nominal bore.	RM	25	0.00001304
d	50 mm nominal bore.	RM	25	0.00001885

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
2106	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	2	0.00000231
2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.	NOS	2	0.00000136
2110	Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete.	NOS	2	0.00000120
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	NOS	2	0.00000119
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No.A2104.			
a	500 litres capacity	NOS	5	0.00002946
b	1000 litres capacity	NOS	4	0.00004713
2200	SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in scope of contractor)			
2201	Supply and fixing glazed vitreous china Wash Basin of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.			
a	White	EACH	2	0.00002581
2204	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete.			
a	Floor mounted	EACH	6	0.00003257
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete.	EACH	6	0.00003588
2206	Providing and fixing white flat back glazed vitreous china urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	6	0.00013429
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.			
a	200mm dia	RM	6	0.00000338
b	300mm dia	RM	6	0.00000675
c	450mm dia	RM	6	0.00001186
d	600mm dia	RM	6	0.00001505
e	900mm dia	RM	6	0.00002283
2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.			
b	250mm dia	RM	6	0.00000445
c	300mm dia	RM	6	0.00000503
d	450mm dia	RM	6	0.00000734
e	500mm dia	RM	6	0.00000764
2300	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			

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JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
2301(A)	Fabrication, erection and alignment of mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, 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 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), 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 (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply steel free of cost). Payment terms: a) Fabrication - 65%, b) Erection - 25% c) Alignment-10%	MT	15756	0.36177132
A2302	Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying TWO COATS OF self-curing Zinc Ethyl Silicate Primer Coat (Solid by Volume Minimum 60%) of Minimum 50 Micron Dry Film Thickness (DFT) each, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete. The Primer Coat shall be applied in Shop immediately after blast cleaning by Airless spray technique.	MT	15756	0.06612655
2304	Extra over ST No. 2301 for providing and applying two coats of synthetic enamel 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 110 microns including protection and cleaning, scaffolding etc. all complete.	MT	290	0.00069661
A2304	Extra over ST No. 2301 for providing and applying two coats of HIGH BUILT EPOXY FINISH with Minimum 90 micron total dry film thickness (DFT) each 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 180 microns including protection and cleaning, scaffolding etc. all complete.	MT	15466	0.05944139
2307	Transportation fro store, erection and alignment of factory made electroforged galvanised grating units (material as per ST No. S 2307 of SCH-4 of Vol-III: Suply) 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, grinding, drilling, welding, edge preparation, etc. all complete. (Cost against supply of factory made electroforged galvanised grating units with fixing clamps, fittings, fixtures etc. payable seperately under ST No. S 2307 of SCH-4 of Vol-III)			
a	Minimum galvanisation of 610 g/sqm	MT	173	0.00663671
2308	Supplying, fabrication, erection and alignment of factory made galvanised welded grating units with mild steel conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	20	0.00198890
ISG-2308A	Transportation from store, erection and alignment of factory made Mild Steel (Heavy Duty) welded grating units (material as per ST No. S- ISG 2308A of Sch-4 of Vol-III: Supply) for Wagon Tippler Hopper with 300mm sq. openings in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 1 coats of redoxide zinc-chromate primer after erection, fixing clamps, fittings, fixtures, grinding, drilling, welding, edge preparation, etc. all complete. (Cost against supply of factory made mild steel (Heavy Duty) welded grating units with fixing clamps, fittings, fixtures etc. payable seperately under ST No. S-ISG 2308A of SCH-4 of Vol-III)	MT	50	0.00164084
2311	Transportation from store and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long (material as per ST No. S 2311 of Sch-4 of Vol-III: Supply) for structural steel work etc all complete. (Cost against supply of permanent mild steel bolts and nuts, washers etc. is payable seperately under ST No. S 2311 of SCH-4 of Vol-III: Supply)	QTL	62	0.00018826

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
2312	Transportation from store and fixing in positing of high strength structural bolts (up to and inclusive of 39 mm diameter and upto 300 mm long and of property class 8.8 and product grade 'C' as per IS: 1367) with high strength structural hardened and tempered nuts(of property class '8' as per IS:1367) conforming to IS:6623, hardened and tempered washers (all materials as per ST No. S 2312 of Sch-4 of Vol-III: Supply) for structural steel work etc all complete. (Cost against supply of high strength structural bolts, high strength structural hardened and tempered nuts, hardened and tempered washers payable seperately under ST No. S 2312 of SCH-4 of Vol-III: Supply)	QTL	417	0.00208485
2313	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	22	0.00015990
2314	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:			
a	In erected position	MT	60	0.00096606
b	In fabrication yard	MT	50	0.00067408
2315	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required posioin, 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 dismnnatled 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	110	0.00115655
2318	Fixing in position PTFE type sliding bearings (material as per ST No. S 2318 of Sch-4 of Vol-III: Supply) as per the construction drawings and for maximum displacement of ± 50 mm including transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads. (Cost against supply of PTFE type sliding bearings payable seperately under ST No. S 2318 of SCH-4 of Vol-III: Supply)			
a	20 Tons	EACH	10	0.00004323
b	25 Tons	EACH	25	0.00012435
c	40 Tons	EACH	25	0.00015487
d	50 Tons	EACH	15	0.00010391
e	60 Tons	EACH	10	0.00008311
2321	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payments terms - a)on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	7	0.00068135
2322	Fabrication and fixing of GI pipe hand railing of 32 mm/40 mm dia NB (Medium Grade) including transportation, loading/unloading, painting etc. all complete.(Cost against supply of GI Pipes is payable seperately under ST No. S 2322 of SCH-4 of Vol-III: Supply)	MT	145	0.00449863
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	69	0.00041993
2324	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	69	0.00006117
2326	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	69	0.00003588
2327	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	69	0.00003937
2400	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in Contractor's scope unless otherwise specified in BOQ).			

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	3860	0.00018861
2402	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete.	CUM	750	0.00015313
2403	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	200	0.00054237
2404	Providing & laying water bound macadam sub base course in layers of required thickness with crushed stone aggregates 90 to 40 mm down size (IRC 19 - grading -1), stone screening & blinding material including screening, sorting, spreading to template & consolidation with road roller including carriage, spreading & consolidation of blinding material moorum etc all complete.	CUM	425	0.00097343
2405	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -1), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	1746	0.00412094
2406	Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone(IRC 19 - grading -1) screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	584	0.00144410
2407	Providing & applying tack coat of low viscosity liquid bitumen of grade 80/100 confirming to IS 73, 217 or 454 as applicable @10 kg/ 10 sqm for untreated WBM surface including scraping, cleaning with compressed air etc all complete.	SQM	3880	0.00028776
2408	Providing & applying tack coat of low viscosity liquid bitumen of grade 80/100 confirming to IS 73, 217 or 454 as applicable @ 6 kg/ 10 sqm for bituminous surface including cleaning with compressed air etc all complete.	SQM	300	0.00001492
2409	Providing, mixing & laying of bituminous macadam course of specified thickness using bitumen of grade 60/70 conforming to IS 73, aggregates and binder material including hot mixing, hot laying, rolling etc all complete for the following.			
a	75mm compacted thickness	SQM	3880	0.00223778
b	50mm compacted thickness	SQM	200	0.00007696
2410	Providing, mixing & laying 25 mm compacted thick premix carpet in a single course composed of suitable small size aggregate premixed with bituminous binder using medium setting grade bitumen on a prepared base including mixing, applying, rolling etc all complete.	SQM	3880	0.00089714
2411	Providing, mixing & laying 25 mm thick semi dense bituminous concrete(SDBC) in a single course composed of suitable small size aggregate premixed with bituminous binder using medium setting grade bitumen on a prepared base including mixing, applying, rolling etc all complete.	SQM	200	0.00005305
2412	Providing and applying liquid seal coat comprising of an application of a layer of bituminous binder using medium setting grade bitumen at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling etc all complete.	SQM	3880	0.00034532
2413	Supplying and laying 400mmx150mmx350mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	1620	0.00055895
A2414	Supply and laying 200 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	200	0.00011251
B2414	Supply and laying 600 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	100	0.00025085

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
2416	Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadem course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete.	SQM	3500	0.00039346
2418	Transportation from Batching Plant & picing at location, Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc. (RMC SHALL BE PROVIDED BY BHEL AT BATCHING PLANT IN PROJECT PREMISES)	CUM	219	0.00017924
2426	Providing & laying 75 mm thick precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	2430	0.00199305
2427	Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	2430	0.00032429
2429	Providing and laying Inverted Choke with 25 mm course of screenings (Grading-B) over prepared subgrade including compaction etc all complete as per specification, drawing and as directed by Engineer.	CUM	20	0.00000129
2600	LEVELING & GRADING: Levelling & grading works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge. (Supply of cement is in Contractor's scope unless otherwise specified in BOQ).			
2601	Cutting of trees having girth more than 300 mm measured at a height of 1m above ground level including removal of roots, stacking the serviceable material like trunks, branches etc at specified area within the plant boundary and disposal of unserviceable parts/materials within a lead upto 1km etc all complete.			
a	300 mm upto 600 mm girth.	Nos	5	0.00000134
b	601 mm upto 1200 mm girth.	Nos	5	0.00000600
2602	Earth work in stripping of top soil upto a maximum depth of 0.30m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300 mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	1200	0.00002618
2603	Earth work in excavation upto any depth below ground level in all types of soil including moorum, ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 1km, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	1050	0.00009253
2610	Extra over ST No. 2601 to 2609 for carriage of unserviceable material/earth for every 500m or part thereof beyond an initial lead of 1km.			
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	60	0.00000052
2611	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300 mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following.	CUM	50	0.00001278
2612	Providing and laying 225mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	50	0.00013853
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.			
ISG-2510A	Breaking of pile head to cut off level and exposing pile reinforcement for embedment in pile cap including cutting , bending, placing, welding, disposal of debris within the plant premises etc. all complete as per specification, drawing and as directed by the engineer-in-charge. (Installation & Testing of Pile under Pile Vendor scope)	Nos.	2093	0.00279412

VOLUME-III PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-3 SERVICE				
ST NO	Item Description	Unit	Quantity	Weightage
A2516	Providing and driving sheet pile upto all depths in various types of soils, cost inclusive of all materials like sheet, tools and plants, anchoring arrangement, labour etc all complete including removing the sheet piles on completion of respective Civil Works as per the direction of engineer in charge. Quoted price is inclusive of design and approval of sheet pile system with anchoring. (The item shall be executed on specific approval by the Engineer-in-charge on a case to-case basis depending on space constraints).	SQM	3000	0.03042455
3101	<p>GUNITING/SHOTCRETING: Shotcreting (Guniting) specified concrete surfaces as per the following specifications including all materials. Labour, tools and plants, scaffolding etc all complete as per the directions of Engineer in charge,</p> <p>i. Fabricating and fixing in position 6mm M S bars at 750mm c/c including connecting to the lugs for fastening</p> <p>ii. Fixing wire fabric confirming to IS:1566 as reinforcement with 3mm diameter spaced at 50mm c/c both ways electrically cross welded including securely tying to the 6mm MS bars by maintaining 100mm overlap for adjacent sheets</p> <p>iii. Fine aggregate shall consist of natural sand or crushed stone from a known source and shall be strong, hard, coarse, sharp, chemically inert, clean and free from any coating. It shall be free from clay, coal or coal residue, organic or any other impurities that may impair the strength or durability of the concrete and shall conform to IS: 383. The fineness modulus shall be preferably between 2.5 and 3.3. Any other value can be used, with prior approval of the Engineer. Fine aggregate (Sand) shall be well graded and particles shall range in size within limits. The Engineer may approve the use of any other grading as per requirement or as per IS: 9012.</p> <p>iv. The surface after the placement of reinforcement and / or welded mesh and not more than six hours prior to the application of concrete, shall be thoroughly cleaned of all loose materials and dirt. The Contractor shall properly prepare the surfaces, reinforcement and / or welded mesh to receive the shotcrete. Cleaned surfaces shall be wetted not more than hour prior to shotcreting.</p> <p>v. The mix as placed on surface shall be one part cement to three parts approved sand by mass. Cement and sand shall be dry mixed; no water shall be added after mixing and before using in the gun. The quantity of water when added shall be only that which is sufficient to hydrate the cement. For average atmospheric conditions, the water cement ratio for shotcrete in place shall be between 0.35 and 0.5 by mass. Suitable admixture shall be used wherever required.</p> <p>vi. A uniform pressure of not less than 25 Kg / cm² at the nozzle shall be maintained. Necessary adjustments shall be made to ensure this pressure, taking into account the length of hose and height of the place to be shotcreted, above location of the machine.</p> <p>vii. The application shall proceed in an upward direction. Beams, stiffeners and intermediate walls, if any, shall be wrapped with wire fabric and completely covered with shotcreting. All rebound shall be removed from the area of application as the work progresses and such rebound material shall not be reused.</p> <p>viii. As soon as the freshly shotcreted surface shows the first dry patches, a fine spray of water shall be applied to keep too moist. After the surface has hardened, it shall be kept continuously moist for minimum seven days. If there is extreme heat, especially when accompanied by hot winds, the shotcreted surface, immediately upon completion, shall be covered with burlap or similar covering, which must be kept continuously moist for 14 days after shotcreting. The temperature of the lining shall not be permitted to exceed 38oC during placing and curing.</p> <p>Note: 6mm MS Reinforcement and welded wire mesh as specified shall be used for thickness of Shotcreting above 50mm (Supply of cement is in Contractor's scope unless otherwise specified in BOQ).</p>			
a	Shotcreting for thickness 50mm and above of with 6mm MS Reinforcement and welded wire mesh as specified	SQM	600	0.00077371
	Total			0.88869159

VOLUME-III				
PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-4 SUPPLY				
ST NO	Item Description	Unit	Quantity	Weightage
S 400	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.			
S 401	Supplying mild steel reinforcements conforming to grade 1 of IS:432 part 1 including cost of reinforcement steel, transportation to site stores etc. all complete as per specifications & drawings. (Payment shall be restricted to quantity consumed as per ST 401 of SCH-3 of Vol-III: Service)	MT	10	0.00049712
S 700	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
S 702	Supplying fabricated mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffener plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. (Payment shall be restricted to quantity consumed as per ST 702 of SCH-3 of Vol-III: Service)	MT	65	0.00423043
S 900	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
S 913	Supplying rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides 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 IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath). (Payment shall be restricted to quantity consumed as per ST 913 of SCH-3 of Vol-III: Service)			
b	Mechanically Operated	SQM	9	0.00005596
c	Electrically operated	SQM	117	0.00080651

VOLUME-III				
PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-4 SUPPLY				
ST NO	Item Description	Unit	Quantity	Weightage
S 1500	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
S 1502	Design & supply of permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class 3 of IS 14246 to be installed over roof purlins for cast-in-situ roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm 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 side lapping, end lapping 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 @ 150 gm/sqm. (Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking). (Payment shall be restricted to quantity consumed as per ST 1502 of SCH-3 of Vol-III: Service).			
a	Span Upto 1800mm	SQM	4749	0.00499480
b	Span Exceeding 1800mm and upto 2500 mm	SQM	5747	0.00604446
S 1508	Design & Supply of Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 150 gm/sqm total on both sides of both sheets including concealed fixing system (Z Purlin) , corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed surface of the sheet shall be permanently colour coated with silicon modified polyester paint of minimum dry film thickness (DFT) 20 microns over suitable primer. Other face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The sheet shall be fixed directly to side runners and Z spacers as per IS : 277. The sheet shall be fixed at the rate not more than 1500mm center to center to hold the insulation and external sheeting. [Measurement of Cladding sheet shall be the covered area of wall excluding openings. No separate payment shall be given for flushing at corner and around opening]. (Payment shall be restricted to quantity consumed as per ST 1508 of SCH-3 of Vol-III: Service).	SQM	44131	0.05194076

VOLUME-III
PRICE SCHEDULE - REV-02

**JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING
OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.**

TENDER NO. PSER:SCT:SDG- C2063:20

SCH-4 SUPPLY

ST NO	Item Description	Unit	Quantity	Weightage
S-ISG 1519	<p>Design & supply double skin insulated wall cladding system comprising of colour coated profiled external sheet manufactured out of similar or equal to 0.45 mm BMT COLORBOND® XRW or equivalent steel- High tensile with min 550 MPa yield strength, metallic hot-dipped coated with Al-Zn alloy (55% Aluminium, 43.5% Zinc, 1.5% Si) as per AS1397 / IS15961 - ZINCALUME® AZ150 (min. 150 g/m2 total on both sides) with Super Durable Polyester COLORBOND® steel XRW quality paint system of approved color, suitable for exterior application conforming to AS/NZS 2728 type-4 / IS15965 class 3. Profile sheet of nominal 1015 mm effective cover width and nominal 28 mm deep ribs with subtle square fluting in the five pans at nominal 203 mm centre-to-centre. The end rib shall be designed for anti-capillary action, to avoid any seepage of water through the lateral overlap. The sheet shall have a total coating thickness of 35 microns, super durable polyester COLORBOND® XRW or equivalent with Thermatch™ solar reflectance technology quality paint system of 20 microns on exposed surface and 5 micron reverse polyester coat on back surface over 5 micron primer coat on both surfaces. The paint system would have stable resin & inorganic pigments for paint durability and is lead free for water harvesting. The steel sheet shall be fastened with nominal 40 µm zinc coated or nominal 25 µm Zinc-Tin alloy coated, Hex head, self-drilling screw as per AS 3566-2002 Class 3 fasteners with EPDM washer and also as per the requirement considering the profile shape and design load. The inner sheeting shall be 0.50mm/0.6mm TCT of SMP coated zincalume steel 150 gsm. (Zinc –aluminium alloy coating mass total of both sides as per AS 1397:1993) having 550 Mpa yield strength.</p> <p>The colour coating shall comprise of 25 microns finish coat over a 10-micron primer coat on the exposed side and a back coat of 10 microns over a primer coat of 5 micron on the reverse side. The inner sheet shall have 980mm cover width 28mm high crests at 195mm centres with special male / female side laps and anti-siphoning features to prevent leakages. The inner sheet shall be fixed to the structure by means of self drilling fasteners no. 12-24 x 25 mm conforms to AS: 3566 Class-3 long at valley. Sub-girts of size 50mm x 50mm x 50mm manufactured out of 16G GI (1.6mm GI) 'Z' shape would be fixed the inner sheeting on face side at runner locations and outer sheeting shall be fixed with the help of concealed compatible interlocking clips and wafer head zinc coated self drilling fasteners / screws 4.2 x 25mm long on to the sub-girts. The clips shall be concealed and no fasteners are to penetrate the external sheeting. An insulation of 50mm thick Rockwool Insulation of density 48KG/M3 conforming to IS: 8183 shall be provided and fixed to the inner sheet and between the two sheets as per specification. If the insulation is made of polyurethane foam then the core in between the outer profiled sheet and the inner sheet will be formed out of polyurethane foam in 30mm thickness having a density of 40-45 kg/cum. The foam shall be in filled in between the outer and the inner sheet using a highly dedicated foaming machine and the entire process of forming the panel will be carried out at factory Panels may be prefabricated factory made panels or in-situ type. Wherever single skin metal cladding shall be used over brickwork, the material shall be same as the outer skin of insulated metal cladding system.</p> <p>(Payment shall be restricted to quantity consumed as per ST ISG 1519 of SCH-3 of Vol-III: Service).</p>	SQM	300	0.00061805

VOLUME-III				
PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-4 SUPPLY				
ST NO	Item Description	Unit	Quantity	Weightage
S 1700	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.			
S 1704	Supplying galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete. (Payment shall be restricted to quantity consumed as per ST 1704 of SCH-3 of Vol-III: Service).	RM	6204	0.00581652
S 2300	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
S 2307	Supplying, fabricated factory made electroforged galvanised grating units with mild steel having minimum galvanisation as below conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. (Payment shall be restricted to quantity consumed as per ST 2307 of SCH-3 of Vol-III: Service).			
a	Minimum galvanisation of 610 g/sqm	MT	173	0.01548565
S-ISG-2308A	Supplying, fabricated factory made Mild Steel (Heavy Duty) welded grating units for Wagon Tippler Hopper with 300mm sq. openings made with MS plates conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 1 coat of redoxide zinc-chromate primer(at shop), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. (Payment shall be restricted to quantity consumed as per ST ISG 2308 A of SCH-3 of Vol-III: Service).	MT	50	0.00382863
S 2311	Supplying permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete. (Payment shall be restricted to quantity consumed as per ST 2311 of SCH-3 of Vol-III: Service).	QTL	62	0.00043927
S 2312	Supplying high strength structural bolts (of property class 8.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete. (Payment shall be restricted to quantity consumed as per ST 2312 of SCH-3 of Vol-III: Service).	QTL	417	0.00486466

VOLUME-III				
PRICE SCHEDULE - REV-02				
JOB: CIVIL, STRUCTURAL & ARCHITECTURAL WORKS FOR COAL HANDLING PLANT & ASH HANDLING PLANT EXCEPT PILING OF 1 X 660 MW UNIT-V, SAGARDIGHI TPP EXTENSION.				
TENDER NO. PSER:SCT:SDG- C2063:20				
SCH-4 SUPPLY				
ST NO	Item Description	Unit	Quantity	Weightage
S 2318	Supplying PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ± 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads. (Payment shall be restricted to quantity consumed as per ST 2318 of SCH-3 of Vol-III: Service).			
a	20 Tons	EACH	10	0.00010087
b	25 Tons	EACH	25	0.00029015
c	40 Tons	EACH	25	0.00036137
d	50 Tons	EACH	15	0.00024246
e	60 Tons	EACH	10	0.00019393
S 2322	Supplying GI pipe for hand railing of 32 mm/40 mm dia NB (Medium Grade) including transportation, loading/unloading, painting etc. all complete.. (Payment shall be restricted to quantity consumed as per ST 2322 of SCH-3 of Vol-III: Service).	MT	145	0.01049681
	TOTAL			0.11130841

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	Civil, Structural & Architectural works for coal handling plant & ash handling plant except piling of 1 x 660 MW Unit-V, Sagardighi TPP extension.	
Ref	1.0	Tender no: PSER:SCT:SDG-C2063:20
	2.0	BHEL's NIT, vide reference no: Ref: PSER:SCT:SDG-C2063:8064, Date: 22-07-2020.
	3.0	BHEL's TCN- 01, vide ref. no. PSER:SCT:SDG-C2063:TCN-01, Date: 06-08-2020.
	4.0	BHEL's TCN- 02, vide ref. no. PSER:SCT:SDG-C2063:TCN-02, Date: 10-08-2020.
	5.0	BHEL's TCN- 03, vide ref. no. PSER:SCT:SDG-C2063:TCN-03, Date: 12-08-2020.
	6.0	BHEL's TCN- 04, vide ref. no. PSER:SCT:SDG-C2063:TCN-04, Date: 17-08-2020.
	7.0	BHEL's TCN- 05, vide ref. no. PSER:SCT:SDG-C2063:TCN-05, Date: 21-08-2020.
	8.0	BHEL's TCN- 06, vide ref. no. PSER:SCT:SDG-C2063:TCN-06, Date: 22-08-2020.
	9.0	BHEL's TCN- 07, vide ref. no. PSER:SCT:SDG-C2063:TCN-07, Date: 26-08-2020.
	10.0	BHEL's TCN- 08, vide ref. no. PSER:SCT:SDG-C2063:TCN-08, Date: 01-09-2020.
	11.0	BHEL's TCN- 09, vide ref. no. PSER:SCT:SDG-C2063:TCN-09, Date: 05-09-2020.
	12.0	BHEL's TCN- 10, vide ref. no. PSER:SCT:SDG-C2063:TCN-10, Date: 10-09-2020.
	13.0	BHEL's TCN- 11, vide ref. no. PSER:SCT:SDG-C2063:TCN-11, Date: 17-09-2020.
	14.0	BHEL's TCN- 12, vide ref. no. PSER:SCT:SDG-C2063:TCN-12, Date: 18-09-2020.
	15.0	BHEL's TCN- 13, vide ref. no. PSER:SCT:SDG-C2063:TCN-13, Date: 21-09-2020.
	16.0	BHEL's TCN- 14, vide ref. no. PSER:SCT:SDG-C2063:TCN-14, Date: 22-09-2020.
	17.0	BHEL's TCN- 15, vide ref. no. PSER:SCT:SDG-C2063:TCN-15, Date: 24-09-2020.
	18.0	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)