

E-TENDER SPECIFICATIONS

S. No.	E- TENDER SPECIFICATION NUMBER
01	BHE/PW/PUR/NTPRT BAL CVL WTP/2805

FOR

BALANCE CIVIL WORK OF WATER TREATMENT PLANT/WATER CHEMISTRY PACKAGE AT 3X800 MW PVUNL PATRATU STPP, JHARKHAND

VOLUME I – TECHNICAL BID**THIS TENDER SPECIFICATION CONSISTS OF:**

Notice Inviting Tender	
Volume-IA	Technical Conditions of Contract
Volume-IB	Special conditions of Contract
Volume-IC	General conditions of Contract
Volume-ID	Forms & Procedures
Volume-IE	Technical Specification and Plot Plan
Volume II	Price Bid



Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

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Volume No	Description	Hosted in website bhel.com (Briefly) and detailed in BHEL e-Procurement Portal as files titled
NIL	Tender Specification Issue Details	(Part of <u>Vol-IA-2805</u>)
NIL	Notice Inviting Tender	(Part of <u>Vol-IA-2805</u>)
I-A	Technical Conditions of Contract	Vol-I-A-2805
I-B	Special Conditions of Contract	Vol-I-BCD-2805
I-C	General Conditions of Contract	(Part of Vol-I-BCD-2805)
I-D	Forms & Procedures	(Part of Vol-I-BCD-2805)
I-E	Technical Specification and Plot Plan	Vol-IE-2805
II	Price Bid Specification as specified in E-Procurement Portal	Volume-II-2805

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FOR

**BALANCE CIVIL WORK OF WATER TREATMENT PLANT/WATER CHEMISTRY
PACKAGE AT 3X800 MW PVUNL PATRATU STPP, JHARKHAND**

EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

**LAST DATE FOR Refer Notice Inviting Tender
TENDER SUBMISSION**

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING VOLUME-I AND VOLUME- II ARE ISSUED TO:

M/s.

.....

**PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.**

For Bharat Heavy Electricals Limited

GM (Purchase)

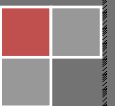
Place: Nagpur

Date:

2805

NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



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E-Tender Spec No: BHE/PW/PUR/NTPRT BAL CVL WTP/2805

Date: 17/06/2023

NOTICE INVITING E-TENDER (NIT)

NOTE: BIDDER MAY DOWNLOAD/ UPLOAD THE TENDER/ OFFER FROM/ON BHEL E-PROCUREMENT PORTAL → <https://eprocurebhel.co.in>

To,

Dear Sir/Madam,

Sub : NOTICE INVITING E-TENDER

Sealed offers in two part bid system (National competitive bidding (NCB) ~~or International Competitive Bidding (ICB)~~ are invited from reputed & experienced bidders (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-1) for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

1.0 Salient Features of NIT

S No.	ISSUE	DESCRIPTION	
i	E-TENDER NUMBER	BHE/PW/PUR/NTPRT BAL CVL WTP/2805	
ii	Broad Scope of job	BALANCE CIVIL WORK OF WATER TREATMENT PLANT/WATER CHEMISTRY PACKAGE AT 3X800 MW PVUNL PATRATU STPP, JHARKHAND	
iii	DETAILS OF TENDER DOCUMENT		
A	Volume-IA	Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	Applicable
B	Volume-IB	Special Conditions of Contract (SCC)	Applicable
C	Volume-IC	General Conditions of Contract (GCC)	Applicable
D	Volume-ID	Forms and Procedures	Applicable
E	Volume-IE	Technical Specifications	Applicable
F	Volume-II	Price Bid as specified in E-Procurement Portal	Applicable
iv	Issue of Tender Documents	Tender documents will be available for downloading from BHEL website (www.bhel.com) or e-procurement portal (https://eprocurebhel.co.in) as per schedule below: Start :17/06/2023, Time :18:00 Closes : 27/06/2023, Time : 13:00	Applicable
v	DUE DATE & TIME OF OFFER SUBMISSION	Date: 27/06/2023, Time: 13.00 Hrs • Place: on <u>E-Tender Portal</u> https://eprocurebhel.co.in	Applicable
vi	OPENING OF TENDER (Techno-Commercial Bid)	Date: 27/06/2023, Time: 17.00 Hrs Notes: (1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day.	Applicable

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S No.	ISSUE	DESCRIPTION	
		(2) Bidder may depute representative to witness the opening of tender. For e-Tender, Bidder may witness the opening of tender through e-Procurement portal only.	
vii	EMD AMOUNT	Rs 33,32,000/- (Rupees Thirty Three Lakh Thirty Two Thousand Only) Important Note: Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC..	Applicable
viii	COST OF TENDER	Free	
ix	LAST DATE FOR SEEKING CLARIFICATION	<p>One day before due date of offer submission. Along with soft version also, addressing to undersigned & to others as per contact address given below:</p> <p>1) Name: Viveka Nand Jha/ Tapish Kumar Designation: Manager Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Mobile-9429198214/ 9010903666 Email : vivekjha@bhel.in/ tapishkhandelwal@bhel.in</p> <p>2) Mr. Kamlesh Kumar Designation: DGM Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Email: kamleshbhel@bhel.in Mob: 9425554615</p> <p>3) Name: R. M. Malhotra Designation: GM Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001</p>	Applicable
x	SCHEDULE OF Pre Bid Discussion (PBD)		Not Applicable
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)	<p>1) Shri Otem Dai, IAS (Retd.) 2) Shri Bishwamitra Pandey, IRAS (Retd.) 3) Shri Mukesh Mittal, IRS (Retd.)</p>	Applicable
xii	Latest updates	<p>Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com-->Tender Notifications →View Corrigendum), & on e-tender portal https://eprocurebhel.co.in and not in the newspapers. Bidders to keep themselves updated with all such</p>	

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S No.	ISSUE	DESCRIPTION
		information.

- 2.0 The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, duly signed digitally using Class III DSC & uploaded in E-Procurement Portal, as part of offer. **Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.**
- 3.0 Not Used
- 4.0 Unless specifically stated otherwise, bidder shall deposit EMD as per clause 1.9 of General Conditions of Contract.

For Electronic Fund Transfer the details are as below:-

NAME OF THE BENEFICIARY	BHARAT HEAVY ELECTRICALS LTD
ADDRESS OF THE COMPANY	5 th Floor, SHREE MOHINI COMPLEX 345, KINGSWAY,NAGPUR
NAME OF BANK	STATE BANK OF INDIA
NAME OF BANK BRANCH AND BRANCH CODE	SBI,NAGPUR MAIN BRANCH ,CODE-00432
CITY	NAGPUR
ACCOUNT NUMBER	40227423158
ACCOUNT TYPE	MC-C C Clean (C&I)
IFSC CODE OF THE BENEFICIARY BANK BRANCH	SBIN0000432
MICR CODE OF THE BANK BRANCH	440002002

(Note -: In case of E-Tenders, proof of remittance of EMD should be uploaded in the E-Procurement Portal and originals, as applicable, shall be sent to the officer inviting tender within a reasonable time, failing which the offer is liable to be rejected.

5.0 Procedure for Submission of Tenders:

This is an E-tender floated online through our E-Procurement Site (<https://eprocurebhel.co.in>). The bidder should respond by submitting their offer online only in our e-Procurement platform at (<https://eprocurebhel.co.in>). Offers are invited in two-parts only.

Documents Comprising the e-Tender

The tender shall be submitted online ONLY EXCEPT EMD (in physical form) as mentioned below:

a. Technical Tender (UN priced Tender)

All Technical details (e.g. Eligibility Criteria requested (as mentioned below)) should be attached in e-tendering module, failing which the tender stands invalid & may be REJECTED. Bidders shall furnish the following information along with technical tender (preferably in pdf format):

- i. Earnest Money Deposit (EMD) furnished in accordance with NIT Clause 4.0. ~~Alternatively, documentary evidence for claiming exemption as per clause 29 of NIT.~~
- ii. Technical Bid (without indicating any prices).

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b. Price Bid:

- i. Prices are to be quoted in the attached Price Bid format online on e-tender portal.
- ii. The price should be quoted for the accounting unit indicated in the e-tender document.

Note:

- It is the responsibility of tenderer to go through the Tender document to ensure furnishing all required documents in addition to above, if any. Any deviation would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.
- A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

DO NOT'S

Bidders are requested NOT to submit the hard copy of the Bid. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, the same shall not be considered. **Also, uploading of the price bid in prequalification bid or technical bid may RESULT IN REJECTION of the tender.**

Digital Signing of e-Tender

Tenders shall be uploaded with all relevant PDF/zip format. The relevant tender documents should be uploaded by an authorized person having Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION digital signature certificate (DSC).

The Requirement:

1. A PC with Internet connectivity &
2. DSC (Digital Signature Certificate) (**Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION**)

BHEL has finalized the e-procurement service Provider:-

NIC PORTAL (<https://eprocurebhel.co.in>)

For E-PROCUREMENT ASSISTANCE & TRAINING, NIC PORTAL HELPDESK CONTACTS AS PER FOLLOWING:

For any technical related queries, please call at 24 x 7 Help Desk Number

0120-4001 002

0120-4200 462

0120-4001 005

0120-6277 787

1. Peter Raj, NIC, Ph: 9942069052

Email Support: support-eproc@nic.in

Other details/update yourself from : <https://eprocurebhel.co.in>

The process of utilizing e-procurement necessitates usage of DSC (Digital Signature Certificate)

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(Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION) and you are requested to procure the same immediately, if not presently available with you. Please note that only with DSC, you will be able to login the e-procurement secured site and take part in the tendering process.

The contact details of the DSC certifying authority:-
please refer <http://www.mca.gov.in/> → MCA SERVICES → DSC SERVICES

Vendors are requested to go through seller manual available on <https://eprocurebhel.co.in>.

Procedure for Submission of Tenders (To be used in case of Paper bid only): The Tenderers must submit their Tenders to Officer inviting Tender, as detailed below:

- PART-I consisting of 'PART-I A (Techno Commercial Bid)' & 'PART-I B (EMD)' in two separate sealed and superscribed envelopes (ENVELOPE-I & ENVELOPE-II)
- PART-II (Price Bid) in sealed and superscribed envelope (ENVELOPE-III)
- One set of tender documents shall be retained by the bidder for their reference

6.0 The contents for ENVELOPES and the superscription for each sealed cover/Envelope are as given below. **(All pages to be signed and stamped) (To be used in case of Paper bid only):**

Sl. no.	Description	Remarks
	Part-I-A	
	<u>ENVELOPE – I superscribed as:-</u> PART-I (TECHNO COMMERCIAL BID) TENDER NO:- NAME OF WORK:- PROJECT:- DUE DATE OF SUBMISSION:- <u>CONTAINING THE FOLLOWING:-</u>	
i.——	Covering letter/Offer forwarding letter of Tenderer.	
ii.——	Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above. <u>Note:</u> a. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding. i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender	
iii.——	Supporting documents/ annexure/ schedules/ drawing etc. as required in line with Pre-Qualification criteria. It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall	

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	distinctly bear the name of organization, contact ph. no, FAX no, etc.	
iv. —	All Amendments/Correspondences/Corrigenda/Clarifications/Changes/Errata etc. pertinent to this NIT.	
v. —	Integrity Pact Agreement (Duly signed by the authorized signatory)	If applicable
vi. —	Duly filled in annexures, formats etc. as required under this Tender Specification/NIT	
vii. —	Notice inviting Tender (NIT)	
viii. —	Volume — I A : Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc.	
ix. —	Volume – I B : Special Conditions of Contract (SCC)	
x. —	Volume – I C : General Conditions of Contract (GCC)	
xi. —	Volume – I D : Forms & Procedures	
xii. —	Volume — II (UNPRICED — without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item	
xiii. —	Any other details preferred by bidder with proper indexing.	

	PART-I B	
	<u>ENVELOPE – II superscribed as:</u> PART I (EMD) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: <u>CONTAINING THE FOLLOWING:-</u>	
	Earnest Money Deposit (EMD) in the form as indicated in this Tender	

	PART-II	
	<u>PRICE BID</u> consisting of the following shall be enclosed	
	<u>ENVELOPE-III</u> superscribed as: PART-II (PRICE BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: <u>CONTAINING THE FOLLOWING</u>	
i	Covering letter /Offer forwarding letter of Tenderer enclosed in Part-I	
ii	Volume II – PRICE BID (Duly Filled in Schedule of Rates – rate/price to be entered in words as well as figures)	

	OUTER COVER	
	<u>ENVELOPE-IV</u> (MAIN ENVELOPE / OUTER ENVELOPE) superscribed as: TECHNO-COMMERCIAL BID, PRICE BID & EMD	

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	TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION: CONTAINING THE FOLLOWING:	
i	<input type="radio"/> Envelopes I <input type="radio"/> Envelopes II <input type="radio"/> Envelopes III	

- **SPECIAL NOTE: All documents/ annexures to be submitted should be uploaded in respective places in the E-Tender portal as per the list mentioned given in this NIT. BHEL shall not be responsible for any in-complete documents.**

- 7.0 Deviation with respect to tender clauses and additional clauses/suggestions in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.
- 8.0 BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).

9.0 Assessment of Capacity of Bidders:

Bidder's capacity for executing the job under tender shall be assessed based on its 'LOAD and PERFORMANCE' and 'AVERAGE ANNUAL TURNOVER', as per the following:

- I. **LOAD:** Load takes into consideration **ALL** the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The cut off month for reckoning 'Load' shall be the 3rd Month preceding the month corresponding to the 'latest date of bid submission', in the following manner -

(Note: For example, if latest bid submission is in Jan 2017, then the 'load' shall be calculated up to and inclusive of Oct 2016)

Total number of Packages in hand = Load (P)

Where 'P' is the sum of all unit wise identified packages (refer table-1) under execution with BHEL Regions as on the cut off month defined above, including packages yet to be commenced, excepting packages which are on Long Hold.

- II. **PERFORMANCE:** Here 'Monthly Performance' of the bidder for all the packages (under execution/ executed during the 'Period of Assessment' in all Power Sector Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding and including the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the 3rd Month preceding the month corresponding to 'latest date of bid submission', in the following manner:

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(Note: For example, if 'latest date of bid submission' is in Jan 2017, then the 'performance' shall be assessed for a 6 months' period up to and inclusive of Oct 2016 (i.e. from May 2016 to Oct 2016), for all the unit wise identified packages (refer Table I))

i). Calculation of Overall 'Performance Rating' for 'Similar Package/Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package/packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:

- a) $P_1, P_2, P_3, P_4, P_5, \dots, P_N$ etc. be the packages (under execution/ executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P_T (i.e. $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)
- b) Number of Months ' T_1 ' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P_1 . Similarly T_2 for package P_2, T_3 for package P_3 , etc. for the tendered scope. Now calculate cumulative total months ' T_T ' for total similar Packages ' P_T ' for all Regions (i.e. $T_T = T_1 + T_2 + T_3 + T_4 + \dots + T_N$)
- c) Sum ' S_1 ' of 'Monthly Performance Evaluation' Scores ($S_{1-1}, S_{1-2}, S_{1-3}, S_{1-4}, S_{1-5} \dots S_{1-T_1}$) for similar package P_1 , for the 'period of assessment' ' T_1 ' (i.e. $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-T_1}$). Similarly, S_2 for package P_2 for period T_2 , S_3 for package P_3 for period T_3 etc. for the tendered scope for all Regions. Now calculate cumulative sum ' S_T ' of 'Monthly Performance Evaluation' Scores for total similar Packages ' P_T ' for all Regions (i.e. ' $S_T = S_1 + S_2 + S_3 + S_4 + S_5 + \dots + S_N$ ')
- d) **Overall Performance Rating ' R_{BHEL} ' for the Similar Package/Packages** (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

$$\begin{aligned} &= \frac{\text{Aggregate of Performance scores for all similar packages in all the Regions}}{\text{Aggregate of months for each of the similar packages for which performance should have been evaluated in all the Regions}} \\ &= \frac{S_T}{T_T} \end{aligned}$$

- e) **Bidders to note that the risk of non-evaluation or non-availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder.**

- f) **Table showing methodology for calculating 'a', 'b' and 'c' above**

Sl. No.	Item Description	Details for all Regions							Total
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P ₁	P ₂	P ₃	P ₄	P ₅	...	P _N	Total No. of similar packages for all Regions = P_T i.e. Sum (Σ) of columns (iii) to (ix)
2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment' for corresponding Similar Packages (as in row 1)	T ₁	T ₂	T ₃	T ₄	T ₅	...	T _N	Sum (Σ) of columns (iii) to (ix) = T_T
3	Monthly performance scores for the corresponding period (as in Row 2)	S ₁₋₁ , S ₁₋₂ , S ₁₋₃ , S ₁₋₄ , ... S _{1-T1}	S ₂₋₁ , S ₂₋₂ , S ₂₋₃ , S ₂₋₄ , ... S _{2-T2}	S ₃₋₁ , S ₃₋₂ , S ₃₋₃ , S ₃₋₄ , ... S _{3-T3}	S ₄₋₁ , S ₄₋₂ , S ₄₋₃ , S ₄₋₄ , ... S _{4-T4}	S ₅₋₁ , S ₅₋₂ , S ₅₋₃ , S ₅₋₄ , ... S _{5-T5}	S _{N-1} , S _{N-2} , S _{N-3} , S _{N-4} , ... S _{N-TN}	-----
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3)	S ₁	S ₂	S ₃	S ₄	S ₅	...	S _N	Sum (Σ) of columns (iii) to (ix) = S_T

- ii). Calculation of Overall 'Performance Rating' (R_{BHEL}) in case at least 6 evaluation scores for 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for ALL the packages, divided by the total number of Package months for which evaluation should have been done. ' R_{BHEL} ' shall be calculated subject to availability of 'performance scores' for at least 6 'package months' in the order of precedence below:

- 'Period of Assessment' i.e. 6 months preceding and including the cut-off month
- 12 months preceding and including the cut-off month
- 24 months preceding and including the cut-off month

In case, R_{BHEL} cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'.

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iii). Factor “L” assigned based on Overall Performance Rating (R_{BHEL}) at Power Sector Regions:

Sl. no.	Overall Performance Rating (R_{BHEL})	Corresponding Value of ‘L’
1	=60	NA
2	> 60 and ≤ 65	0.5
3	> 65 and ≤ 70	0.45
4	> 70 and ≤ 75	0.4
5	> 75 and ≤ 80	0.375
6	> 80 and < 90	0.35
7	≥ 90	0.33

- iv). Performance Systems: The performance rating as mentioned in II (i) and (ii) above, shall be calculated as per Online Systems i.e. Contractor Performance Evaluation System (CPES) and Safety Performance Evaluation System (HSEPES). The scores assigned in HSEPES shall be scaled down to 10 and assigned in CPES against the category “HSE” (mentioned in Form F-15).

III. i) ‘Assessment of Capacity based on ‘LOAD and PERFORMANCE’:

- a) ‘Assessment of Capacity of Bidder’ is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:

Max number of packages $P_{Max} = (R_{BHEL} - 60)$ divided by corresponding value of ‘L’, i.e. $(R_{BHEL} - 60)/L$

Note:

- i). In case the value of P_{Max} results in a fraction, the value of P_{Max} is to be rounded off to next whole number

- ii). For $R_{BHEL} = 60$, $P_{Max} = '1'$

The Bidder shall be considered ‘Qualified’ on ‘Performance basis’ as per ‘Assessment of Capacity of Bidder’ for the subject Tender if $P \leq P_{Max}$
(Where P is calculated as per clause ‘I’ above)

- b) In addition to above, in case contractor fails to score 5 or more than 5 (five) marks in the scaled down scores of HSEPES for “3 or more than 3 months in a period of 6 months preceding and including the cut-off month in any single package”, the contractor shall be considered disqualified for ongoing tender(s) of BHEL. Qualification of bidder for further tendering process shall be subject to qualifying this condition in addition to qualifying requirements mentioned in PQR. Bidders who did not qualify this condition shall not be considered under the provisions of clause 9 IV (iv) of NIT.

ii) Assessment of Capacity based on ‘AVERAGE ANNUAL TURNOVER’:

If the ‘value of contracts in hand’ across all PS Regions by a contractor is less than the product of “annual average turnover of the Contractor and multiplying factor”, then such bidder shall be considered qualified on ‘Annual Average Turnover basis’. The ‘value of contracts in hand’ will be computed by summing up “50% of the annualized awarded value of each contract” unless performance evaluation is not closed in the online CPES.

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Based on the performance rating of the Contractor, the above mentioned multiplying factor shall be as below:

Sl. no.	Overall Performance Rating (R_{BHEL})	(Multiplying factor to Average Annual Turnover)
1	≥ 60 and ≤ 70	1
2	> 70 and ≤ 80	2
3	> 80	3

'Assessment of Capacity of Bidder':

The bidder will be considered qualified for the tender if it qualifies on 'Load and Performance basis' as well as on 'Average Annual Turnover basis'.

However, 'New Vendor' / 'Consortium Partner' shall be considered qualified based on only 'Load and Performance' (they will be regarded pre-qualified on 'Average Annual Turnover' criteria).

IV. Explanatory note:

i). Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to be evaluated considering all the identified packages (i.e. Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above.

ii). Identified Packages (Unit wise)

Table-1

Civil	Electrical and C&I	Mechanical
i). Enabling works	i). Electrical	i). Boiler & Aux (All types including CW Piping if applicable)
ii). Pile and Pile Caps	ii). C&I	ii). Power Cycle Piping/Critical Piping
iii). Civil Works including foundations	iii). Others (Elect. and C&I)	iii). ESP
iv). Structural Steel Fabrication & Erection	iv). Electrical Enabling Works	iv). LP Piping
v). Chimney		v). Steam Turbine Generator set & Aux
vi). Cooling Tower		vi). Gas Turbine Generator set &

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vii). Others (Civil)	Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Management x). FGD xi). ACC xii). Others (Mechanical)
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- iii). Bidders who have not been evaluated for at least six package months in the last 24 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered “NEW VENDOR”.

A ‘NEW VENDOR’ shall be considered qualified subject to satisfying all other tender conditions.

A ‘NEW VENDOR’ if awarded a job (of package/packages identified under this clause) shall be tagged as “FIRST TIMER” on the date of first LOI from BHEL.

The “FIRST TIMER” tag shall remain till completion of all the contracts against which vendor has been tagged as First Timer or availability of 6 evaluation scores within last 24 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions.

A Bidder shall not be eligible for the next job as long as the Bidder is tagged as “FIRST TIMER” excepting for the Tenders which have been opened on or before the date of the bidder being tagged as ‘FIRST TIMER’.

After removal of ‘FIRST TIMER’ tag, the Bidder shall be considered ‘QUALIFIED’ for the future tenders subject to satisfying all other tender conditions including ‘Assessment of Capacity of Bidders’.

- iv). Consequent upon applying the criteria of ‘Assessment of Capacity of Bidders’ detailed above on all the bidders qualified against Technical and Financial Qualification criteria, if the number of qualified bidders reduces to less than four, then for further processing of the Tender, BHEL at its discretion reserves the right to also consider the bidders who are “not qualified” as per criteria of ‘Assessment of Capacity of Bidders’ and for this, procedure described in following three options shall be followed:

- a) All the bidders having Overall Performance Rating (R_{BHEL}) ≥ 60 shall be considered qualified against criteria of ‘Assessment of Capacity of Bidders’.
- b) If even after using option “a”, the number of qualified bidders remains less than four, then in addition to bidders considered as per option “a”, “First timer” bidders having average of

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available performance scores ≥ 60 upto and including the Cut Off month shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.

- c) If even after using option "a" and "b", the number of qualified bidders remains less than four, then in addition to bidders considered as per option "a" and "b", "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.

Note:- In case, the number of bidders qualified against Technical and Financial Qualification criteria itself is less than four, then all bidders (a)- having Overall Performance Rating (R_{BHEL}) ≥ 60 , (b)- "First timer" bidders having average of available performance scores ≥ 60 upto and including the Cut Off month, (c)- "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall be considered qualified against criteria of 'Assessment of Capacity of Bidders' for further processing of tender.

- v). 'Under execution' shall mean works in progress as per the following:

- a. Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages
- b. Up to Steam Blowing in case of Boiler/ESP/Piping Packages
- c. Up to Synchronization in all Balance Packages

Note: BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (a), (b) and (c) above, depending upon the balance scope of work to be completed.

- vi). Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be informed immediately. Login Details for viewing scores in Contractor Performance Evaluation System shall be provided to the Contractor by SCT Department.
- vii). Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site/ GM Project latest by 27th of Evaluation Month or 5 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.
- viii). Project on Hold due to reasons not attributable to bidder -
- a. **Short hold:** Evaluation shall not be applicable for this period, however, Loading will be considered.

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b. **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as Long Hold. Evaluation as well as Loading shall not be considered for this period.

ix). Performance evaluation as specified above in this clause is applicable to Prime bidder and Consortium partner (or Technical tie up partner) for their respective scope of work

10.0 Since the job shall be executed at site, bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc. before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.

11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail and/or through e-procurement portal, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc. or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.

14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.

15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**

“Integrity Pact (IP)”

(a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl. No.	IEM	Email
1.	Shri Otem Dai, IAS (Retd.)	iem1@bhel.in
2.	Shri Bishwamitra Pandey, IRAS (Retd.)	lem2@bhel.in

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3.	Shri Mukesh Mittal, IRS (Retd.)	Iem3@bhel.in
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- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

Name:	R M Malhotra/ GM (Purchase)	Tapish Kumar/Manager (Purchase)
Dept:	Purchase Department	
Address:	Floor No. 5 & 6, Shreemohini Complex, 345 Kingsway, Nagpur-440001	
Email:	rmalhotra@bhel.in	vivekjha@bhel.in
Phone:	0712-2858633	9010903666

- 16.0 The Bidder has to satisfy the Pre-Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre-Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.
- 17.0 In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorized representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.
- 18.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.
- 19.0 **Reverse Auction:** Applicable. "BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com on "**supplier registration page**".) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.
- Price Bids of all the techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.
- 20.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.

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- 21.0 In case the bidder is an “Indian Agent of Foreign Principals”, ‘Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.
- 22.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
- 23.0 Consortium Bidding (or Technical Tie up) shall be allowed only if specified in Pre-Qualifying Requirement (PQR) criteria, and in such a case the following shall be complied with:
- 23.1 Prime Bidder and Consortium Partner or partners are required to enter into a consortium agreement for the said contract with a validity period of six months initially. In case bidder becomes L1, Consortium Agreement valid till contractual completion period shall be submitted to BHEL before signing the contract. Consortium Agreement shall be kept valid till scope of work awarded to consortium partner(s) as per contract is completed.
- 23.2 ‘Standalone’ bidder cannot become a **‘Prime Bidder’ or a ‘Consortium bidder’ or ‘Technical Tie up bidder’ in a consortium (or Technical Tie up) bidding**. Prime bidder shall neither be a consortium partner to other prime bidder nor take any other consortium partners. However, consortium partner may enter into consortium agreement with other prime bidders. In case of non-compliance, consortium bids of such Prime bidders will be rejected.
- 23.3 Number of partners for a Consortium Bidding (or Technical Tie up) including Prime Bidder shall be NOT more than 3 (three).
- 23.4 Prime Bidder shall be as specified in the Pre-Qualification Requirement, else the bidder who has the major share of work.
- 23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical ‘Pre Qualifying Requirements’ specified for the respective package, (ii) “Assessment of Capacity of Bidder” as specified in clause 9.0.
- 23.6 Prime Bidder shall comply with additional ‘Technical’ criteria of PQR as defined in ‘Explanatory Notes for the PQR’.
- 23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified
- 23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.
- 23.9 Prime Bidder shall be responsible for the overall execution of the contract.
- 23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats.
- 23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL and BHEL shall take necessary action as per extant guidelines. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.

23.12 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 the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL.

23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of one work with a consortium partner under direct order of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.

23.14 The consortium partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 0.5% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. However, Prime Bidder has also option for submission of SD on behalf of consortium partner (s).

SD submitted by Consortium Partner(s) may be released in case corresponding scope of work of the respective Consortium partner(s) has been completed upto the extent of 80% based on certification by Construction Manager and concurrence by the prime bidder.

23.15 In case of a Technical Tie up, all the clauses applicable for the Consortium partner shall be applicable for the Technical Tie up partner also.

24.0 The bidder shall submit/upload documents in support of possession of 'Qualifying Requirements' duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.

25.0 The bidder may have to produce original document for verification if so decided by BHEL.

26.0 The consultant / firm (and any of its affiliates) shall not be eligible to participate in tender(s) for the related works or services for the same project, if they were engaged for the consultancy services.

27.0 Guidelines/rules in respect of Suspension of Business dealings, Vendor evaluation format, Quality, Safety & HSE guidelines, Experience Certificate, etc. may undergo change from time to time and the latest one shall be followed. The abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on "supplier registration page".

28.0 The offers of the bidders who are on the banned/ hold list and also the offer of the bidders, who engage the services of the banned/ hold firms, shall be rejected. The list of **banned/ hold firms** is available on BHEL web site www.bhel.com.

28.1 Integrity commitment, performance of the contract and punitive action thereof:

28.1.1 Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender Process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

28.1.2 Commitment by Bidder/ Supplier/ Contractor:

- (i) The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally

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entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.

- (ii) The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.
- (iii) The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the prices or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extent guidelines of the company available on www.bhel.com and / or under applicable legal provisions.

29.0 Micro and Small Enterprises (MSE)

~~Any Bidder falling under MSE category, shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their techno-commercial offer.~~

Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women
— Micro			
— Small			

~~**Note:** - If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category.~~

~~a) MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F. No. 21(8)/2011 MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer, attested copies of either Udyam Registration Certificate or EM-II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or Udyog Aadhar Memorandum (UAM) & Acknowledgement or EM-II Certificate along with attested copy of a CA certificate (format enclosed as Annexure — 3) where deemed validity of EM-II certificate of five years has expired applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer. Documents submitted by the bidder may be verified by BHEL for rendering the applicable benefits.~~

30.0 The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

31.0 PREFERENCE TO MAKE IN INDIA:

For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/Non-Local Supplier and purchase preferences to Class I local supplier, is as defined I

Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

31.1 **Compliance to Restrictions under Rule 144 (xi) of GFR 2017**

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. The Competent Authority for the purpose of this Clause shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Clause means: -
 - a. An entity incorporated established or registered in such a country; or
 - b. A subsidiary of an entity incorporated established or registered in such a country; or
 - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d. An entity whose beneficial owner is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or
 - f. A natural person who is a citizen of such a country; or
 - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The beneficial owner for the purpose of (III) above will be as under:
 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation

- a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company.
- b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements.
2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership.
3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or

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together, or through one or more juridical person has ownership of or entitlement to more than fifteen percent of the property or capital or profits of the such association or body of individuals.

- 4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;*
- 5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.*

- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.*
- VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.*

Note:

- (i) The bidder shall provide undertaking for their compliance to this Clause, in the Format provided in Annexure-11.*
- (ii) Registration of the bidder with Competent Authority should be valid at the time of submission as well as acceptance of the bids.*

32.0 Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection. All overwriting/cutting, etc., will be numbered by bid opening officials and announced during bid opening.

33.0 In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders.

In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss/ draw of lots, in the presence of the respective L-1 bidder(s) or their representative(s).

Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding.

34.0 The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

35.0 Order of Precedence:

In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:

- a. Amendments/Clarifications/Corrigenda/Errata etc. issued in respect of the tender documents by BHEL
- b. Notice Inviting Tender (NIT)

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- c. Price Bid
- d. Technical Conditions of Contract (TCC)—Volume-1A
- e. Special Conditions of Contract (SCC) —Volume-1B
- f. General Conditions of Contract (GCC) —Volume-1C
- g. Forms and Procedures —Volume-1D

It may please be noted that guidelines/ circulars/ amendments/ govt. directives issued from time to time shall also be applicable.

For BHARAT HEAVY ELECTRICALS LTD

(General Manager - Purchase)

Enclosure:

- 01. Annexure-1: Pre Qualifying Requirements.
- 02. Annexure-2: Check List.
- ~~03. Annexure-3: Certificate by Chartered Accountant~~
- 04. Annexure-4: Reverse Auction Process Compliance Form
- 05. Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process
- 06. Annexure-6: RA Price Confirmation and Breakup
- 07. Annexure-7: Integrity Pact
- 08. Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR
- 09. Annexure-9: Declaration reg. Related Firms & their areas of Activities
- 010. Annexure-10: DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE, 2020 AND SUBSEQUENT ORDER(S)
- 011. Annexure 11: DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017
- 012. Annexure 12: Important information

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ANNEXURE - 1

PRE QUALIFYING CRITERIA

JOB	BALANCE CIVIL WORK OF WATER TREATMENT PLANT/WATER CHEMISTRY PACKAGE AT 3X800 MW PVUNL PATRATU STPP, JHARKHAND		
TENDER NO	BHE/PW/PUR/NTPRT BAL CVL WTP/2805		
SL NO	PRE QUALIFICATION CRITERIA	Bidders claim in respect of fulfilling the PQR Criteria	
		Applicability	
A	Submission of Integrity Pact duly signed (if applicable) (Note: To be submitted by Prime Bidder & Consortium / Technical Tie-up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder)	APPLICABLE	
B	<p>B) Technical PQR</p> <p>Bidder shall essentially meet all the Qualifying Requirements (i.e. B.1 & B.2) as under:</p> <p>B.1: 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 works" for any one of the following in the last seven years from latest date of bid submission:</p> <p>B.1.1) Executed One work of value not less than Rs. 1865.60 Lakhs against single work order.</p> <p style="text-align: center;">OR</p> <p>B.1.2) Executed Two works each of value not less than Rs. 1166 Lakhs against maximum two work orders.</p> <p style="text-align: center;">OR</p> <p>B.1.3) Executed Three works each of value not less than Rs. 932.80 Lakhs against maximum three work orders.</p> <p style="text-align: center;">And</p> <p>B.2: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least 6985 Cum within a common period of twelve consecutive months in cumulative of maximum two running/completed contracts.</p>	APPLICABLE	
C.1	Bidders must have achieved an average annual financial turnover (audited) of Rs. 699.60 Lakhs or more over last three Financial Years (FY) i.e 2019-20 , 2020-21 & 2021-2022'	APPLICABLE	
C.2	NETWORTH (only in case of Companies) Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive.	APPLICABLE	
C.3	PROFIT Bidder must have earned profit in any one of the three Financial	APPLICABLE	

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	Years as applicable in the last three Financial Years as furnished for 'C-1' above.		
C-4	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 (Annexure-8) to this effect.	APPLICABLE	
D	Assessment of Capacity of Bidder: The "Assessment of Capacity of Bidders" for this Tender shall be carried out by considering the identified packages i.e. " Civil Works including foundations "	APPLICABLE	
E	Approval of Customer (if applicable): Note: Names of bidders (including consortium/Technical Tie up partners in case consortium bidding is permitted) who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval	APPLICABLE	
F	Price Bid Opening Note: Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E		BY BHEL
G	Consortium tie-ups	NOT APPLICABLE	
<p><u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u></p> <p><u>Explanatory Notes for PQR B.1 (Technical)</u></p> <ul style="list-style-type: none"> For the criteria (B.1), actual executed value shall be considered. 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- $P = R + 0.425 \times R \times \frac{(X_N - X_0)}{X_0} + 0.425 \times R \times \frac{(Y_N - Y_0)}{Y_0}$ <p>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). X₀ = 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). Y₀ = Monthly Whole Sale Price Index for All Commodities for last month of work execution</p> <ul style="list-style-type: none"> The evaluation currency for this tender shall be INR. <p><u>Explanatory Notes for Technical Criteria (B2):</u></p>			

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1. VOID
2. Unless otherwise specified, for the purpose of "B2 Technical Criteria", the word 'EXECUTED' means achievement of milestones as defined below -
 - a. "ACHIEVEMENT OF PHYSICAL QUANTITIES" as per PQRs.
 - b. "READINESS FOR COAL FILLING" of at least one Bunker, in respect of Mill Bunker Structure.
 - c. "CHARGING" in respect of Power Transformers/ Bus Ducts/ "HT/LT Switchgears" / "HT/LT Cabling".
 - d. For C&I works: "SYNCHRONISATION" in case of power project / "WORK EXECUTION of the value as defined in PQR" in case of industry.
 - e. "BOILER LIGHT UP" in respect of Boiler / CFBC / ESP.
 - f. "CHARGING OF ATLEAST ONE PASS" in respect of ESP(R&M)
 - g. "GAS IN" in respect of HRSG.
 - h. "STEAM BLOWING" in respect of Power Cycle Piping.
 - i. "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.
 - j. "FULL LOAD OPERATION OF THE UNIT" in respect of Insulation work.
 - k. "SYNCHRONISATION" in respect of STG / GTG.
 - l. "SPINNING" in respect of HTG.
 - m. "GAS IN" in respect of FGD
3. Boiler means HRSG or WHRB or any other types of Steam Generator.
4. Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass.
5. 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.

Explanatory Notes for PQR -C (Financial):

C-1:

- i. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above.
- ii. Evaluation of Turnover criteria shall be calculated from the Audited Balance Sheet and Profit & Loss Account for the three Financial Years (FY).
- iii. In case audited Financial statements have not been submitted for all the three years as indicated against C-1 above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years.
- iv. 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.

C-2: Net Worth (Only in case of companies) of the bidder should be positive.

Note: Net worth shall be calculated based on the latest Audited Accounts as furnished for 'C-1' above.

Net worth = Paid up share capital + Reserves

C-3: Bidder must have earned profit in any one of the three financial years as applicable in the last three financial years as furnished for 'C-1' above.

Note: PROFIT shall be PBT earned during any one year of last three financial years as in 'C-1' above.

C-4: 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.

Common Explanatory Notes:

1. For evaluation of PQR, in case Bidder alone does not meet the pre-qualifying technical criteria B1 above, 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 availed 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'.
2. Completion date for achievement of the technical criteria specified in the 'B' above 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. Completion date shall be reckoned from the "Financial Year quarter of bid submission". (for e.g. -Work completed on 01.01.2014 shall be considered even if latest date of bid submission is 20.03.2021).
3. "Executed" means the bidder should have achieved the technical criteria specified in the Common QR even if the Contract has not been completed or closed.
4. 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.
5. Following shall be complied with in case of consortium:
 - a. The Prime Bidder and Consortium Partner(s) are required to enter in to a consortium agreement and certify to BHEL regarding existence and validity of their consortium agreement in line with validity period mentioned in NIT.
 - b. Prime Bidder and Consortium partners shall be approved by Customer for being considered for the tender (applicable if customer approval is required).
 - c. Number of partners including prime Bidder shall be NOT more than 3 (three).
 - d. Prime Bidder alone shall necessarily comply with "B1 Technical Criteria" except for mechanical package where B1 criteria is not applicable.
 - e. Prime Bidder and Consortium Partner shall together comply with the 'Pre-Qualification Requirements' specified for the respective category of technical requirement as per "B2 technical criteria".
 - f. Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified.
 - g. All other conditions shall be read in conjunction with clause no 23.0 of NIT.
 - h. Prime Bidder shall be the Bidder who has a major share of work.
 - i. Prime Bidder shall be responsible for the overall execution of the Contract.

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- | | |
|--|--|
| | <ul style="list-style-type: none">j. Performance shall be evaluated for Prime Bidder and the Consortium partner for their respective scope of work.k. In case the Consortium partner backs out, another consortium partner meeting the QRs, has to be engaged by Prime Bidder and if not, the respective work will be withdrawn and executed on risk and cost basis of the prime bidder.l. 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 the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHELm. After successful execution of one work with a consortium partner under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.n. The Consortium partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. |
|--|--|

BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT INCLUSIVE OF WORK ORDER AND WORK COMPLETION CERTIFICATE ETC IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

Credentials submitted by the bidder against "PRE QUALIFYING CRITERIAS" shall be verified for its authenticity. In case, any credential (s) is/are found unauthentic, offer of the bidder is liable to the rejection. BHEL reserves the right to initiate any further action as per extant guidelines for Suspension of Business Dealings.

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Format-1

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

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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ANNEXURE - 2

CHECK LIST

NOTE: - Tenderers are required to fill in the following details and no column should be left blank

1	Name and Address of the Tenderer		
2	Details about type of the Firm/Company		
3.a	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
3.b	Details of alternate Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4	EMD DETAILS	DD No: Date : Bank : Amount: <u>Please tick (√) whichever applicable:-</u> ONE TIME EMD / ONLY FOR THIS TENDER	
5	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
		APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
6	Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
7	Audited profit and Loss Account for the last three years	Applicable/ Not Applicable	YES/NO
8	Copy of GST & PAN Card	Applicable/ Not Applicable	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc. are read understood and signed	Applicable/ Not Applicable	YES/NO
10	Integrity Pact	Applicable/ Not Applicable	YES/NO
11	OFFER FORWARDING LETTER / TENDER SUBMISSION LETTER	Applicable/ Not Applicable	YES/NO
12	Declaration by Authorized Signatory	Applicable/ Not Applicable	YES/NO
13	No Deviation Certificate	Applicable/ Not Applicable	YES/NO
14	Declaration confirming knowledge about Site Conditions	Applicable/ Not Applicable	YES/NO

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15	Declaration for relation in BHEL	Applicable/ Not Applicable	YES/NO
16	Non-Disclosure Certificate	Applicable/ Not Applicable	YES/NO
17	Bank Account Details for E-Payment	Applicable/ Not Applicable	YES/NO
18	Capacity Evaluation of Bidder for current Tender	Applicable/ Not Applicable	YES/NO
19	Tie Ups/Consortium Agreement are submitted as per format	Applicable/ Not Applicable	YES/ NO
20	Power of Attorney for Submission of Tender/Signing Contract Agreement Power of Attorney of Consortium Partner.	Applicable/ Not Applicable	YES/NO
21	Analysis of Unit rates	Applicable/ Not Applicable	YES/NO
22	Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process	Applicable/ Not Applicable	YES/NO
23	Annexure-6: RA Price Confirmation and Breakup	Applicable/ Not Applicable	YES/NO
24	Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR	Applicable/ Not Applicable	YES/NO
25	Annexure-9: Declaration reg. Related Firms & their areas of Activities (x) Other Tender documents as per this NIT.	Applicable/ Not Applicable	YES/NO
26	Annexure-10 Declaration regarding minimum local content	Applicable/ Not Applicable	YES/NO
27	Annexure-11: Declaration regarding compliance to restrictions under rule 144 (xi) of GFR 2017	Applicable/ Not Applicable	YES/NO

NOTE: STRIKE OFF 'YES' OR 'NO', AS APPLICABLE. TENDER NOT ACCOMPANIED BY THE PRESCRIBED ABOVE APPLICABLE DOCUMENTS ARE LIABLE TO BE SUMMARILY REJECTED.

DATE :

AUTHORISED SIGNATORY

(With Name, Designation and Company seal)

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ANNEXURE-3

Certificate by Chartered Accountant on letter head

(applicable upto 31st March'2021 in line with MSME notification no. S.O. 2119 (E), dated 26th June'2020)

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
..... is registered under MSMED Act 2006, (Entrepreneur
Memorandum No (Part-II)/ Udyam Registration Certificate No.
dtd:, Category: (Micro/Small/Medium)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest audited
financial year as per MSMED Act 2006 is as follows:-

1. ~~For Manufacturing Enterprises:~~ Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006:
RsLacs
2. ~~For Service Enterprises:~~ Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
RsLacs
3. ~~For Enterprises (having EM II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum):~~ Investment in plant and machinery or equipment is Rs..... Lacs and turnover is Rs. Lacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)
4. ~~For Enterprises (having EM II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum):~~ Investment in plant and machinery or equipment is Rs..... Lacs and turnover is Rs. Lacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)

~~(Strike off whichever is not applicable)~~

~~The above investment of RsLacs is within permissible limit of
Rs Lacs for Micro / Small/ Medium (Strike off which is not applicable)
Category under MSMED Act 2006.~~

~~Or~~

~~The enterprise has been graduated upward from its original category (micro/small/medium) (strike off which is not applicable), the enterprise shall maintain its prevailing status till expiry of one year from the close of year of registration, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.~~

~~Or~~

~~The enterprise has been reverse graduated from its original category (micro/small/medium) (strike off which is not applicable), the enterprise will continue in its present category till the closure of the financial year and it will be given the benefit of the changed status only with effect from 1st April of the financial year following the year in which such change took place, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.~~

~~Date:~~

~~(Signature)~~

~~Name:~~

~~Membership Number:~~

~~Seal of the Chartered Accountant~~

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Website: www.bhel.com

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ANNEXURE-4

Reverse Auction Process Compliance Form

**(The bidders are required to print this on their company's letterhead
and sign, stamp before RA)**

To

- M/s. {Service provider
- Postal address}

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{ BHE/PW/PUR/NTPRT BAL CVL WTP/2805} dt. {.....}
This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction guidelines (as available on www.bhel.com), and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will FAX/ email the price confirmation & break up of our quoted price as per Annexure - 6 within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Sign this document and FAX/ email it to M/s {Service provider} at {.....} prior to start of the Event.

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ANNEXURE – 5

Authorization of representative who will participate in the on line Reverse Auction Process:

1	NAME OF THE BIDDER	
2	NAME & DESIGNATION OF OFFICIAL	
3	POSTAL ADDRESS (COMPLETE)	
4	TELEPHONE NOS. (LAND LINE & MOBILE BOTH)	
5	E-MAIL ADDRESS	
6	NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION	

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ANNEXURE – 6

**Reverse Auction price confirmation and breakup
(To be submitted by L1 bidder after completion of Reverse Auction)**

To

- M/s. Service provider
- Postal address

CC: M/s BHEL POWER SECTOR WESTERN REGION, Nagpur

Sub: Final price quoted during Reverse Auction and price breakup

Dear Sir,

We confirm that we have quoted.

Rs. _____ (in value) &
_____ (in words)

for item(s) covered under tender enquiry No. BHE/PW/PUR/NTPRT BAL CVL WTP/2805

~~Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, GST, E.D., C.S.T., freight and insurance charges up to {.....} District, {.....} State and Type Test Charges etc., (exclusive of service tax), other as per NIT}~~

as our final landed prices as quoted during the Reverse Auction conducted today {date } which will be valid for a period of { in nos. & in words } days. as mentioned in the subject tender.

Yours sincerely,

For _____

Name:

Company:

Date:

Seal:

Registered Office: BHEL House, Siri Fort, New Delhi – 110 049, India
Website: www.bhel.com

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ANNEXURE – 7

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for **BALANCE CIVIL WORK OF WATER TREATMENT PLANT/WATER CHEMISTRY PACKAGE AT 3X800 MW PVUNL PATRATU STPP, JHARKHAND (ETS no.: BHE/PW/PUR/NTPRT BAL CVL WTP/2805)**. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

- 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional

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information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

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Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.
- 6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

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- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity; they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

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8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.12 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.

9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.

10.2 Changes and supplements as well as termination notices need to be made in writing.

10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.

10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.

10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be

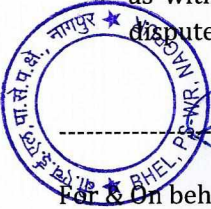
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confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.



For & On behalf of the Principal

For & On behalf of the Bidder/
Contractor

(Office Seal)

(Office Seal)

Place-----

Date-----

Witness:_____

(Name & Address) _____

Witness:_____

(Name & Address) _____

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ANNEXURE - 8

UNDERTAKING

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Dear Sir/Madam,

Sub: DECLARATION REGARDING INSOLVENCY/ LIQUIDATION/ BANKRUPTCY PROCEEDINGS

Ref: NIT/Tender Specification No: BHE/PW/PUR/NTPRT BAL CVL WTP/2805

I/We, _____ declare that,
I/We am/are not under insolvency resolution process or liquidation or Bankruptcy Code
Proceedings (IBC) as on date, by NCLT or any adjudicating authority/authorities, which will render
us ineligible for participation in this tender.

**Sign. of the AUTHORISED SIGNATORY
(With Name, Designation and Company seal)**

Place:

Date:

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Website: www.bhel.com

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Annexure-9

DECLARATION

Date: _____

To

GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Sub: Details of related firms and their area of activities

Dear Sir/ Madam,

Please find below details of firms owned by our family members that are doing business/
registered for same item with BHEL, _____ (NA, if not applicable).

1	Material Category/ Work Description	
	Name of Firm	
	Address of Firm	
	Nature of Business	
	Name of Family Member	
	Relationship	
2	Material Category/ Work Description	
	Name of Firm	
	Address of Firm	
	Nature of Business	
	Name of Family Member	
	Relationship	
.....		

Note: I certify that the above information is true and I agree for penal action from BHEL in case any of the above information furnished is found to be false.

Regards,
(_____)

From: M/s _____
Supplier Code: _____
Address: _____

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Annexure-10

**DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH
REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED
04TH JUNE, 2020 AND SUBSEQUENT ORDER(S)**

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,
GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Dear Sir,

Sub: Declaration reg. minimum local content in line with Public Procurement (Preference to Make in India), Order 2017-Revision, dated 04th June, 2020 and subsequent order(s).

Ref: 1) NIT/Tender Specification No: BHE/PW/PUR/NTPRT BAL CVL WTP/2805,
2) All other pertinent issues till date

We hereby certify that the items/works/services offered by.....
(specify the name of the organization here) has a local content of _____ % and this meets the local content requirement for '**Class-I local supplier**' / '**Class II local supplier**' ** as defined in Public Procurement (Preference to Make in India), Order 2017-Revision dated 04.06.2020 issued by DPIIT and subsequent order(s).

The details of the location(s) at which the local value addition is made are as follows:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |

...

Thanking you,
Yours faithfully,

**(Signature, Date & Seal of
Authorized Signatory of the Bidder)**

**** - Strike out whichever is not applicable.**

Note:

1. Bidders to note that above format Duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.
2. In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practising cost accountant or practicing chartered accountant (in respect of suppliers other than companies).
3. In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder.)

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Annexure-11

**DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi)
OF GFR 2017**

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Dear Sir,

Sub: Declaration regarding compliance to Restrictions under Rule 144 (xi) of GFR 2017

Ref: 1) NIT/Tender Specification No: BHE/PW/PUR/NTPRT BAL CVL WTP/2805,
2) All other pertinent issues till date

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries. I certify that _____ *(specify the name of the organization here)*,

(a) is not from such a country / ☐

(b) has been registered with the Competent Authority *(attach valid registration by the Competent Authority, i.e., the Registration Committee constituted by the Dept. for Promotion of Industry and Internal Trade (DPIIT))*; ☐

and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. *(attach relevant valid registration, if applicable)*

I hereby certify that we fulfil all requirements in this regard and is eligible to be considered.

Thanking you,
Yours faithfully,

**(Signature, Date & Seal of
Authorized Signatory of the Bidder)**

Note: Bidders to note that in case above certification given by a bidder, whose bid is accepted, is found to be false, then this would be a ground for immediate termination and for taking further action in accordance with law and as per BHEL guidelines.

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Annexure-12: IMPORTANT INFORMATION

E -Tender for this work is invited by BHEL PSWR NAGPUR and offer shall be submitted through BHEL e-procurement portal only. All correspondences regarding this tender shall be through E-procurement portal.

Postal Address:

GM /Purchase BHEL PSWR,
SRIMOHINI COMPLEX, Floor No. 5 & 6, 345 KINGSWAY, NAGPUR 440001, INDIA

Following are the concerned BHEL officials to whom bidders can contact in case of any difficulty:

Manager Purchase, Email: vivekja@bhel.in :9429198214

Manager Purchase, Email: tapishkhandelwal@bhel.in Ph: +91-9010903666

DGM/Purchase, email: kamleshbhel@bhel.in,

GM Purchase, Email: rmalhotra@bhel.in.

1. Refer the abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' which is available at www.bhel.com on "supplier registration page" at the following link:
https://www.bhel.com/sites/default/files/suspension_guidelines_abridged.pdf
2. All Statutory Requirements as applicable for this project shall be complied with.
3. Following clause shall form part of the HSE documents issued under Chapter IX of Volume IB 'Special Conditions of Contract'

"In case of any financial deduction made by Customer for lapses of safety other than what is provided elsewhere in the contract, the same shall be charged on back-to-back basis on the defaulting contractor without prejudice to any other right spelt anywhere in the tender /contract"

4. BHEL Fraud Prevention Policy: "The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice."
5. "Pradhan Mantri Kaushal Vikas Yojna: The contractor shall, at all stages of work deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/Industrial Training Institute/ National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/ certified by State/ Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be

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paid by contractor at the rate of Rs.100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding”.

6. The following clause is added under clause 1.10 Security Deposit in Vol-1C:

Clause No 1.10.8 of Vol-IC General Conditions of Contract: Timely Submission of Security Deposit for Execution of the contract: “Bidder agrees to submit Security Deposit required for execution of the contract within the time period mentioned. In case of delay in submission of Security Deposit, enhanced Security Deposit which would include interest (Base rate of SBI +6%) for the delayed period, shall be submitted by the bidder. Further, if Security Deposit is not submitted till such time the first bill becomes due, the amount of Security Deposit due shall be recovered as per terms defined in NIT/contract, from the bills along with due interest.”

7. Acceptance of Bank Guarantee (BG)

Revision in Acceptance of Bank Guarantee (BG) Clause no. 1.10.3 (iii) of Vol I C GCC:

Clause No. 1.10.3 (iii) of Vol IC GCC is revised as below: -

“Bank Guarantee issued by:

a. Any of the BHEL consortium bank listed below:

State Bank of India
ABN Amro Bank N.V.
Bank of Baroda
Canara Bank
Citi Bank N.A.
Corporation Bank
Deutsche Bank
HDFC Bank Ltd.
The Hongkong and Shanghai Banking Corporation Ltd
ICICI Bank Ltd.
IDBI Ltd.
Punjab National Bank
Standard Chartered Bank
State Bank of Travancore
State Bank of Hyderabad
Syndicate Bank

b. Any public sector Bank (other than consortium banks) with a clause in the text of Bank Guarantee that “**It is enforceable at Nagpur, Maharashtra**”.

c. Any private sector banks, with a clause in the text of Bank Guarantee that “**It is enforceable by being presented at any branch of the bank**”.

Note: “Bank Guarantees issued by Co-operative Banks are not acceptable”.

8. The clause 2.7.9.1 below is added under the heading “Rights of BHEL” of General Conditions of Contract Volume-IC GCC:

2.7.9.1 Provision of Penalty in case of slippage of Intermediate Milestones:

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- i) **Two major Intermediate Milestones are mentioned as M1 & M2 in Chapter VI: Time Schedule of Vol IA Technical Conditions of Contract.**
- ii) In case of slippage of these identified Intermediate Milestones, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to Form 14.
- iii) In case delay in achieving M1 Milestone is solely attributable to the contractor, 0.5% per week of Executable Contract Value*, limited to maximum 2% of Executable Contract Value, will be withheld.
- iv) In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of Executable Contract Value*, limited to maximum 3% of Executable Contract Value, will be withheld.
- v) Amount already withheld, if any against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 Milestone.
- vi) Amount required to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.
- vii) Final deduction towards LD (if applicable as per clause 2.7.9 above), on account of delay attributable to contractor shall be based on final delay analysis on completion / closure of contract. Withheld amount, if any due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.
- viii) 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.

* **Executable Contract Value** - Value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.

9. Broad Terms & Conditions of Reverse Auction:

In continuation to Clause 19.0 of NIT (Notice Inviting Tender) following are the broad terms and conditions of Reverse Auction:

"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) (<https://www.bhel.com/guidelines-reverse-auction-2021>) for this tender. RA shall be conducted among the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."

Note:-

- 1. No benefits to MSE bidders w.r.t Reverse Auction Guidelines as available on www.bhel.com against works contract.
- 2. In case of enquiry through e-procurement the sealed electronic price bid (e-bid) is to be treated as sealed envelope price bid.

10. -Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC

11. Clause no. 2.24 of GCC PERFORMANCE GUARANTEE FOR WORKMANSHIP: The guarantee period shall commence from the date of Completion of contract as certified by BHEL Engineer.

12. Overrun Compensation (Clause no. 2.12 of GCC) shall not be applicable

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13. **Clause 2.17 of GCC: PRICE VARIATION COMPENSATION : Applicable. However 2.17.6 is being amended as below**

Existing	Amended As
Base date shall be calendar month of the 'last date of submission of Tender'	Base date shall be calendar month of the 'date of Start of Work'

14. **IMPORTANT NOTE:**

The BALANCE CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS OF WATER CHEMISTRY PACKAGE AT 3X800MW PVUNL PATRATU STPP, JHARKHAND **is under execution by other agency. BALANCE CIVIL WORK OF WATER TREATMENT PLANT/WATER CHEMISTRY PACKAGE AT 3X800 MW PVUNL PATRATU STPP, JHARKHAND is being withdrawn from existing agency on "as is where is" basis.**

However, bidder should visit the site for actual assessment of work & understand the actual physical situation before bidding.

Previous contractor** (*Who was executing BALANCE CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS OF WATER CHEMISTRY PACKAGE AT 3X800MW PVUNL PATRATU STPP, JHARKHAND, which included the tendered works*) shall not be eligible to participate in this tender.

**

- i). In case Previous contractor/supplier is The Sole Proprietorship Firm, any Sole Proprietorship Firm owned by same Sole Proprietor.
- ii). In case Previous contractor/supplier is The Partnership Firm, any firm comprising of same partners/ some of the same partners (but not including any new partner); or sole proprietorship firm owned by any partner(s) as a sole proprietor.

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TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: PROJECT INFORMATION

1.0 Project Information:

3X800 MW PVUNL PATRATU TPP PHASE-1 is being set up by PVUNL (Patratu Vidyut Utpadan Nigam Limited, a subsidiary of PVUNL Ltd in Joint venture with Jharkhand Bijli Vitran Nigam Limited).

Sl. No.	Description	Details
1.1	Location	PATRATU
1.2	Nearest Railway Station	Patratu (04Kms)
1.3	Nearest Airport	RANCHI (45Kms)
1.4	Access By Road	Patratu (04Kms)
1.5	Major Towns/Cities	Ranchi (45Kms)
1.6	Source of Water	Patratu Reservoir.
1.7	Maximum Temperature	48 degree Centigrade
1.8	Minimum Temperature	0.6 degree Centigrade

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2.0 **SCOPE OF WORK**

2.1 Micro Grading: After the completion of civil work the entire area shall be micro graded up to required levels by the contractor to achieve the ground profile as per pavement level requirement at no extra cost. Filling/ cutting required to bring the site up to the required finished levels is in the scope of the contractor. Extra earth required to make up to paved levels shall be arranged by the contractor at his own cost from approved borrow areas.

2.2 **SCOPE OF WORK: -**

The scope work for **Water Treatment Plant/Water Chemistry Package** works under the specification covers the supply, storage at site, storage of material supplied by BHEL (i.e. taking delivery of materials from plant gate / BHEL stores, transportation to site), construction, painting, protection of all items as specified hereinafter but without excluding any other necessary components, which are not mentioned herein but are required for the completeness and efficient, easy and reliable operation of the system.

The works to be performed under this specification include execution of complete civil and architectural works for foundations for equipment, buildings, facilities, substructures, superstructures, underground structure including inserts, and infrastructure works as per the detailed scope and specification enclosed elsewhere in this tender document. The works shall generally comprise (but not limited to) carrying out all necessary survey, tests, studies, investigations as may be required for design, construction or erection up to the specified terminal points mentioned elsewhere, including supply of all materials, consumables, tools & plants and labour etc. as per approved drawings and specification **on item rate basis**.

Following Civil structures are covered under this tender:

- 1) DM plant (Misc. Balance Works)
- 2) DM MCC (Water Proofing, Internal & External Painting, Plinth Protection Drains etc.)
- 3) Degasser
- 4) Acid Alkali Area N –pit (Balance Misc. Works such as AR Tiles etc.)
- 5) CPU regeneration (Balance works such as Grade Slab, Brick work etc.)
- 6) PT plant Chemical house (Ground floor slab and onward works)
- 7) Centrifuge shed
- 8) ClO₂, ACW treatment (Above ground civil works)
- 9) ETP clarifier, stilling chamber

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- 10) ETP gravity filter
- 11) Lamella Clarifier
- 12) Misc. Sumps
- 13) ETP equipment foundation
- 14) ETP shed
- 15) STP
- 16) STP-MCC
- 17) Misc. structures, etc.

2.3 CIVIL WORKS RELATED TO FOLLOWING SERVICES: -

- 1. Process waste collection system
- 2. ETP Sumps for this package.
- 3. Waste Water Sewer
 - 3.1 Oily Waste Sewer (OWS)
 - 3.2 Contaminated Rain/Fire Water Sewer (CRWS)
- 4. Sanitary and plumbing system in the buildings (for the buildings within the scope of this contract only)
- 5. Cooling water Supply & Return(WCS/WCR) within the battery limit of this package
- 6. RCC Electrical/Instrumentation cable trenches and pipe trenches
- 7. Pipe way Bridges
- 8. Pipe way Sleepers
- 9. Crossings (Culverts, bridges, sleeves as per applicable) of underground services below approach road for all services in the corridor including drains, fire water lines, cooling water lines, waste sewers.
- 10. Any temporary activities required to complete the work.

2.4 THE WORK WILL INVOLVE.

All civil work required to complete Civil and architectural works for **Water Treatment Plant /Water Chemistry Package** as per scope including RCC work, earth work, concrete work, brick work, steel work, embedment, plastering and painting, wooden and metal doors, windows and partitions, waterproofing, flooring, ceiling, plumbing works, sanitary works, road work, drainage, grouting etc.

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2.5 **CIVIL AND ARCHITECTURAL WORKS**

The scope covers all Civil and Architectural works within the battery limits of this Package.

The important works covered under this package are as below:

1. Excavation of earth and backfilling including dewatering of excavations for foundations, trenches, pits, etc. till the construction of the same is completed and disposal of surplus earth.
2. Construction Raft/ Foundation with pedestal for all civil structures, trenches, tunnels, sumps, grade beams, tie beams at foundation level, grade slabs, floor slabs and roof slabs at any height, equipment foundations etc.
3. Preparation and submission of detailed calculations, arrangement drawings and detail drawings of formwork, staging and scaffolding for all reinforced concrete structures and foundations as directed by the Engineer for his checking and approval.
4. Preparation of detailed working drawings and bar bending schedule for all reinforced concrete work and getting them approved before start of work by the BHEL Engineer.
5. Taking delivery of TMT Steel, structural steel, earthing rod, GI flat, GI grating, MS Rails etc. from BHEL stores/ storage yards for utilisation in construction work under this package.
6. Fabrication and fixing of templates/frames, inserts, fixing of anchor bolts, sleeves, and embedments etc. in concrete.
7. Supply of all instruments and personnel for conducting necessary tests at site as specified/as directed by the Engineer.

2.6 **General Scope:**

- 2.6.1** Furnishing all labour, materials, supervision, construction plans, equipment, supplies, transport, to and fro the site, fuel, compressed air, and all other incidental items and temporary works not shown on specified but reasonably implied or necessary for the proper completion, maintenance and handling over the works, except in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provide by the engineer during the course of works.
- 2.6.2** Furnishing samples of all materials required by the engineers for testing/inspection and approval for use in the works. The samples may be retained by the engineer for final incorporation in the works.

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- 2.6.3 Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the engineer.
- 2.6.4 Giving all notices, paying all fees, taxes etc., in accordance with the general conditions of contract, that is required for all works including temporary works.
- 2.6.5 Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
- 2.6.6 Carrying out topographic survey of the entire and establish levels and coordinates at suitable intervals from existing grid levels and coordinates furnished by the owner established bench marks, setting out the locations and levels of proposed structures, constructions and marking of reference pillars and other identification works etc., The contractor shall provide the owner/BHEL such a assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.
- 2.6.7 Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract.
- 2.6.8 Arranging for joint checking (with BHEL/BHEL's Customer/Consultant) of all site construction activities Preparation of joint protocols for each & every activity and maintaining quality records for audit/inspection as per approved FQP by BHEL.
- 2.6.9 The drawings enclosed with this tender are intended to give the tenderer a general idea of the type and extent of work involved. The drawings are as such only indicative and not to be considered as the exact construction drawings.

Further this is to be noted that the drawings and the documents furnished along with this specification are the sole property of B.H.E.L. It must not be used directly or indirectly in any way detrimental to the interest of the company.

- 2.6.10 The scope of work will also include such other related works although they may not be specifically mentioned in the above paragraph and all such incidental items not specified but reasonably imply and necessary for completion of the job as a whole all as desired and as directed by the engineer.
- 2.6.11 The detail scope of work covered above is not a comprehensive list of items of work involved. The detail scope of work may vary considerably depending on the actual construction requirements as per RFC Drawings.
- 2.6.12 **BHEL at its discretion may include other area works, limited to 15% of awarded contract value, although not be specially mentioned in above scope of works. All such incidental works not specified but reasonably implied and necessary for completion of the project as a whole,**

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contractor shall execute the works as desired and as directed by BHEL engineer which is binding on the contractor. The item rates & contract conditions shall remain unchanged for such works.

2.7 WORKS BY OTHERS

No work under the specification will be provided by any agency other than the contractor unless specifically mentioned elsewhere in the contract.

2.8 SITE VISIT

Contractor should visit 3X800MW PVUN project site, to acquaint himself with the conditions prevailing at site and in and around the plant premises, together with all the statutory, obligatory, mandatory requirements of various authorities before submission of the bid.

2.9 Carrying out work by BHEL

BHEL reserves the right to withdraw/restrict/alter the quantum of works as per clause No. 2.7 of GCC.

NOTE:

Contractor has to make him well conversant with the Customer specification. In case of ambiguity between BHEL and customer specification, customer specification shall prevail.

2.10 PREAMBLE FOR THE SCHEDULE OF QUANTITIES/BOQ.

- 2.10.1** Details of the items in this Schedule shall be read in conjunction with the Corresponding Consultants/PVUN specifications, drawings and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
- 2.10.2** The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions, Drawings enclosed with these documents are only indicative giving some idea of the type of work involved. The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary at a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
- 2.10.3** Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.

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- 2.10.4** Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour materials, levies , taxes , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 2.10.5** The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and levelling etc., required for commencement of site activities. The rates shall also be inclusive of final micro grading before handing over. No separate payment will be made towards the same.
- 2.10.6** The rate shall also be inclusive of carrying out topography survey of site to establish levels and coordinates at suitable intervals, from existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
- 2.10.7** The quantities of the various items mentioned in the schedule are approximate and may vary up to any extent or be deleted altogether. The overall variation in contract value on execution shall be dealt as per GCC. Contractor has to obtain prior approval of BHEL/ PVUN before procurement of bought out items/ building materials.
- 2.10.8** Rates shall be quoted both in figures and in words in clear legible writing. No over writing is allowed. All scoring and cancellation should be counter signed by the bidder. In case of illegibility, the interpretation of the engineer shall be final. All entries shall be in English language.
- 2.10.9** Engineers decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.
- 2.10.10** In case of any discrepancy between item description, relevant drawing and/or specification Clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.
- 2.10.11** Mix design (M 20, M 25, M 30) for all concreting shall be carried out either at site or from a reputed approved institute, contractor has to ensure adding of admixture and minimizing of cement content in line with IS 456 as advised by BHEL time to time without any additional cost. Bidder may use approved available Design Mix at site with approval of Engineer Incharge. Engineer Incharge decision shall be final and binding in this regard.

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2.10.12 The scope shall also include setting up by the bidder a testing laboratory (one AC lab size 4.5mtrx6mtr and 1 non AC lab 4.5 mtrx4.5 mtr.) in the field to carry out all relevant tests. Detail of laboratory equipments as per TCC is to be arranged by the contractor within quoted rate for conducting day to day one no. chemist to be deployed as necessary. They may tie up with approved/registered inspection agencies for setting up test lab at site as described above.

(i) Installation of necessary amenities- temporary infrastructure for construction activities at Project site locations- following are the minimum amenities to be provided by the bidder without any extra cost and removal/disposal of the same in environment friendly manner after its intended use/completion of complete scope of work:

1. Labour rest sheds near work spot.
2. Canteen facility creation.
3. Drinking water facility.
4. Labour toilets near work spot in sufficient nos. with regular cleaning & maintenance arrangement
5. First Aid Facility will be maintained by BHEL and it will be on cost sharing basis.
- 6 Labour colony should have all hygienic condition, dining hall, toilets, proper sewerage system, good drinking water arrangements.

NOTE: In case of non-compliance of above points, BHEL will make penal recoveries at the rate decided at site mutually by BHEL and contractor or as imposed by PVUNL.

2.11 Laying / Cutting & Re-welding of associated electrical earthing works below the road & drains and surrounding areas shall also be done by civil contractor as per drawings for which 40mm dia. MS rod/GI flats (as applicable) shall be supplied by BHEL free of cost

2.12 Following works shall be executed by other agency(Exclusion):

2.12.1 Dismantling of all over ground structures of existing plant in all areas identified for site levelling works in drawing no. 9585-001-POC-A-001 (Rev-D) titled "SITE LEVELLING PLAN".

2.12.2 Removal/Dismantling of all underground structures of existing plant up to foundation level required for the facilities of New proposed plant.

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2.12.3 Dismantling of all underground structures of existing plant up to 1m depth below FGL in other areas identified in site levelling works drawing no. 9585-001-POC-A-001 (Rev-D) titled “SITE LEVELLING PLAN”.

2.12.4 Installation/ erection of factory fabricated structural steel.

2.13 Hierarchy of Documents:

In case of any conflict/deviations of technical specifications with regard to any work; amongst various documents, the order of precedence shall be as follows:

- (1) Statutory Regulations
- (2) PVUNL Technical Specifications / Section-C: Specific Technical Requirements
- (3) Items in Schedule of Quantities
- (4) IS standards
- (5) Section-D: General Technical Specifications

The above hierarchy shall be followed strictly for technical requirements only to carry out works under the scope of this contract.

2.14 Construction Power(Chargeable):

2.14.1 Construction Power shall be made available to the Contractor at 415 V feeders of LT substation located at Single point in the plant. Contractor shall be fully responsible to make all the arrangement beyond these LT feeder points for further distribution to meet all construction power requirements for the entire area in scope of this package.

2.14.2 Supply, erection, testing and commissioning of 415V switchboards, power and control cables, DC Systems etc. under the Contractor's scope. All necessary statutory requirements for charging construction power Contractor's network shall be in the Contractor's scope.

2.14.3 Contractor shall deploy and install required energy meter, cables, fuses, distribution boards, switchboards, bus bars, earthing arrangements, protection devices and any other installation as specified by statutory authority/act. Capacitor Bank is to be arranged by vendor for power factor improvement of the system as per I. E. Rule.

2.14.4 Contractor shall also obtain approvals of appropriate authority and pay necessary fees, levies etc towards the clearance of such installations, prior to use. Sufficient power factor compensation equipment's like capacitor shall be provided by contractor for reactive loads like welding machines etc. In case of any fine/penalty on account of low power factor, same shall be shared by contractor proportionately according to power consumption.

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- 2.14.5** Contractor shall make necessary arrangements for onward distribution of construction power taking due care of surrounding construction activities like movement of cranes & vehicles, civil work, fabrication/construction/assembly/erection etc. and safety of personnel. It may become necessary to relocate some of the installations to facilitate work by other agencies or by him.
- 2.14.6** It shall be the responsibility of the Contractor to provide, maintain the complete installation on the load side of the supply with due regard to the safety requirements at site. All cabling and installations shall comply in all respects with the appropriate statutory requirements. The installation and maintenance of this shall be done by licensed and experienced electrician.
- 2.14.7** While reasonable efforts will be made to ensure continuous electric power supply, interruptions cannot be ruled out and no claim from the Contractor shall be entertained on this account such as idle labor, extension of time etc. The Contractor shall adjust his working shift accordingly and deploy additional manpower, if necessary, so as to achieve the target.
- 2.14.8** Contractor shall be well equipped with back-up power supply arrangement like DG set and diesel operated welding machine etc. to tackle situations arising due to failure of supplied power, so as to ensure continuity and completion of critical processes that are underway at the time of power failure or important activities planned in immediate future.
- 2.14.9** BHEL is not responsible for any loss or damage to the Contractor's equipment as a result of variations in voltage or frequency or interruptions in power supply.
- 2.14.10** The charges for the actual energy consumed by contractor shall be recovered on relevant rate of Discom and as specified in specification.

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 by use of suitable electrical equipments. 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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2.15 Construction Water:

Construction Water shall be arranged by contractor at his own cost during all stages of construction.

BHEL is making arrangement of construction water from PVUN resources, it may take few months for arrangement. Please note BHEL will give construction water at single location on chargeable basis. Distribution will be in bidder scope.

Note: Due to any constraint at site if BHEL fails to provide construction water, contractor may have to arrange for construction water on its own. Any cost implication of the same shall be to the account of contractor and no extra payment shall be made for any such arrangements made by contractor (if required).

2.16 Field Quality Assurance:

The contractor shall be responsible for day-to-day quality checks of concrete and other building materials during the progress of work. All quality records and log sheets shall be maintained as per the requirement of BHEL/BHEL'S customer and as per field quality plan approved by BHEL/PVUNL. Contractor shall establish their own field quality lab and have tie-up with approved lab by BHEL/PVUNL in/outside of the plant if so required by BHEL/PVUNL.

2.17 Reconciliation of steel issued by BHEL (free of cost):

2.17.1 General Notes:

- (a) All steel like structural steel, reinforcement bars, earthing rod/ GI flats, foundations bolts, MS rails **except MS/GI/SS Hand rails** as specified in relevant BOQ and shall be issued free of cost by BHEL unless specified otherwise in BOQ for use in the work covered in this contract from BHEL stores/storage yard. The contractor shall collect these materials from BHEL stores/store yard at specified places at his own cost and store the same at the work site or in his stores as per standard norms. Materials issued will be used only for construction of permanent works. **Procurement, supply, fabrication erection and painting of MS Handrails is in contractor scope.**
- (b) BHEL reserves the right to recover from the contractor any loss arising out of damage/ theft or any other causes or during verification/stacking or at any time under the custody of the contractor.
- (c) The contractor shall take care of material issued by BHEL and shall protect the same from damage and weathering. Contractor shall construct waterproof cement store (**capacity minimum 200 MT/ 4000 Bags**) for storing and stacking of cement **issued by BHEL free of cost.**
- (d) The contractor shall in no case be entitled for any compensation on account of any delay in supply or non-supply thereof for all or any such materials. However, in case of non-availability of any specific section(s) which delays

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the completion of work, such cases shall be recorded separately in monthly planning format (F14) and shall be considered for time extension of contract.

- (e) Contractor will have to make his own arrangement at his own cost for procurement of any other materials except as mentioned above, as required for the works and of such quality as acceptable to BHEL.
- (f) The contractor shall maintain proper store account for all the BHEL issued materials and shall give **Three (03) copies of monthly-computerized reconciliation statement** of such account showing total receipt, consumption and balance at site to the BHEL. BHEL Engineer's certification for the reconciliation of steel shall be final. The detailed reconciliation (dia. Wise or as required) shall be done **at least once in three months (03) or before submission of final bill which comes earlier.**
- (g) Contractor shall also carryout in complete association with BHEL, the material management functions and execution like day-to-day update of materials, issued to contractor, accounting for surplus/scrap material returned etc. These functions shall also be carried out through computerized system utilizing suitable software. Contractor shall engage experienced software personnel to associate on dedicated basis for efficient discharge of the same in time.
- (h) The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL.
- (i) BHEL issued materials, shall not be under any circumstances whatsoever, and shall be taken out of the project site unless otherwise permitted by BHEL for outside job.

2.18 HANDLING OF MATERIALS ISSUED BY BHEL:

2.18.1 Materials shall be issued by BHEL based on the weighment basis/linear measurements & sectional weight. However, on specific request of the contractor **“as a special case to expedite the job”** the consignment received at BHEL stores can directly be diverted to the work site following issuance procedure of BHEL. Such direct issues shall be as per the Challan/dispatch document/LR received with the consignment. In such cases, Contractor shall do unloading of materials from trucks/lorry at their own cost.

2.18.2 All materials issued by BHEL shall be stacked, stored above ground level **by use of concrete or wooden sleepers. No materials shall remain on ground at any time.** All concrete or wooden sleepers required for stacking the materials shall be arranged by contractor (successful bidder of this package) at his own cost within the quoted rates. All other equipments like winches, D-Shackles, slings of various sizes, max puller, pulley blocks, jacks, trucks, trailers etc. Required for such handling of steel from BHEL

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stores/storage yard etc. Shall be arranged by contractor within quoted/accepted rates.

- 2.18.3** The contractor shall take delivery of the materials from the designated place within the project premises at his own cost and store the same at his stores as per standard norms. Open land for such purposes shall be provided by BHEL on free of cost basis. Temporary barbed wire fencing of the open storage yard is to be done by the contractor and is included under the scope of his work. Contractor shall also remove grass, bushes, trees etc wherever required off the land provided to him and shall make proper continuous up keeping of the open yard /land by removing grass, bushes trees etc and same is included under the scope of his work & No extra payment shall be made to the contractor in this regard. The bidder shall make complete arrangement of necessary security personnel's to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent works. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering. Excessive rusting of steel in custody of agency/contractor 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.**

2.19 Issue of cement free of cost:

- 2.19.1** Cement is issued through Bag being supplied from manufacturer/stockiest; the same shall be stored in cement stores of batching plant and necessary assistance shall be provided by contractor.
- 2.19.2** Contractor to note that batching plant being established at site shall have minimum **cement Storage shed of 200 MT capacities.**
- 2.19.3** Cement is issued through bags as received from the manufacturer/stockiest. The theoretical weight of each bag of cement for issued purposes will be considered as 50 kg. The contractor shall be accountable for the cement issued to the contractor on this notional weight only. No claim whatsoever will be entertained because of difference between theoretical and actual weight of the bags of cement.
- 2.19.4** The empty cement bags duly accounted for against issue shall be the contractor's property and the same shall be disposed as per statutory regulation prevailing in the project.
- 2.19.5** **In case BHEL supplies cement through Bulker, Bidder has to store cement in Silos of Suitable capacities as decided by Engineer in charge. Silos Capacities shall be finalized mutually.**

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BHEL will not issue cement free of cost for factory made Product/BOI like Fly Ash Brick, Paver Block, Tiles, Hume Pipe etc. unless specified otherwise.

2.20 ISSUE OF STEEL.

2.20.1 The steel shall be issued to the contractor on the following basis:

- Structural Steel: Weighment basis (Unit – MT)
- Reinforcement Steel and Earthing Rod: Weighment basis (Unit-MT)
- MS Rails: Weighment Basis (Unit-MT)

2.20.2 All the steel (structural, reinforcement, earthing rod/GI flats, GI foundation bolts, etc) issued by BHEL shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs etc. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following IS/BS/EN specifications.

Sr No	Name of Standard	Name of Section
1	IS: 808-1964	Beams, Channels and Angles
2	IS: 1730-1961	Plates, Sheets and Strips/Flats
3	BS4-1: 1993	UB/UC sections
4	IS: 12778/equivalence with EN-19-57	For NPB sections
5	IS: 12778/equivalence with EN-53-62	For HE/WPB sections
6	IS: 1786 or grade -1 of IS432 (Part-I)	Rounds including deformed high yield strength bars.

In case any such sectional weights are not available in the above documents, the manufacturer recommendation shall be binding.

2.20.3 The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores, no claims for extra payment because of issue of non-standard length will be entertained.

2.20.4 The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.

2.20.5 The contractor shall submit to BHEL, a statement indicating estimated quantity of cement and steel required during a quarter. In addition, the

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contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.

- 2.20.6** Following shall be limit for the maximum quantity of BHEL issue materials that would be with the contractor at any point of time when work is in progress (excluding what has already been incorporated in the works).

SL No.	ISSUE OF MATERIALS	MAX QUANTITY IN CONTRACTORS STORE
01	Reinforcement steel, earthing rod/GI flat, Foundation bolt, MS Rails , as per BOQ	ONE MONTH
02	Structural Steel	ONE MONTH
03	Cement	ONE MONTH

- 2.20.7** Bidders shall ensure that no lamination material is taken over by them from BHEL.
- 2.20.8** The contractor must note that cement and steel required for the contractor's enabling job like store/ site office/batching plant/temporary woks etc. shall be arranged by the contractor at his own cost.
- 2.20.9** Bidder to give requirement of Material in BHEL Scope well in advance of before Three month from requirement. Any delay in raising the requirement of these item leading to delay in placement of order, will be Contractor responsibility and its attributable delay in erection will be responsibility of Bidder only.

2.21 RETURN OF MATERIALS

- 2.21.1 Return of Cement:** Sealed cement bags remaining unused and in perfectly good condition at the time of completion or termination of the contract shall be returned promptly, (within 15 days from assessment) if BHEL/ engineer is satisfied of the physical condition of the cement. Return of such cement to the project stores / place as identified within the project area by engineer/ BHEL will not be entitled to handling and incidental charges. Surplus sealed and good conditioned cement bags will be taken back on weighment basis.
- 2.21.2 Return of Reinforcement Steel and Structural Steel including Scrap:** All surplus steel and all wastage materials will be taken back on weighment basis. Surplus, unused and untampered steel shall be sorted section-wise and returned separately at a place directed by BHEL/Engineer within the project area. Return of such materials will not be entitled to any handling and incidental charges. All wastage / scrap (including melting scrap, wastage, and unusable scrap) shall be promptly returned to the stores and a receipt obtained for material accounting purposes. Return of such material will not

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be entitled to any transportation and incidental charge. Scrap for reinforcement steel and structural steel shall be returned separately.

2.22 Scrap and Serviceable Materials:

- 2.22.1** All structural steel of length above 2 M except M.S Plate shall be considered as **serviceable materials** provided the materials is in good and acceptable condition. Structural steel in length less than 2 M Shall be treated as scrap.
- 2.22.2** Plates having both side greater than 1 Meter OR if any side is less than 1 M but greater than 0.5 M and the total area is equal or greater than 2 sq. Meter shall be considered as **serviceable material**.
- 2.22.3** All pipe measuring 2 M and above in length shall be treated serviceable materials provided they are in good and acceptable condition. Pipe in less than 2 M length shall be treated as Scrap.
- 2.22.4** All TMT measuring 3 M and above in length shall be treated as **serviceable material** provided they are in good acceptable condition. TMT in less than 3 M shall be treated as scrap.

2.23 Cement, Steel Consumption and wastage:

2.23.1 Cement Consumption:

The theoretical consumption of cement shall be based on the following:

- For design mix concrete as per approved design mix.
- For nominal mix concrete work, as per minimum cement as specified or as approved by engineer-in-charge.
- For item of works, where volume mix is permitted in writing by the BHEL, for masonry works, plaster other miscellaneous items, the cement consumption shall be governed by the “Statement of cement consumption” attached to the DSR-2013 unless otherwise specified in the specifications or the drawing of contract or mutually agreed by engineer-in-charge and the contractor.
- Actual consumption = Issue – Surplus/ unused quantity of cement returned in good condition by the contractor to store. (No sweep cement will be taken back by BHEL).

2.23.2 Cement Wastage:

2.23.2.1 Allowable wastage: One and half percent (+1.5%) of theoretical consumption of cement.

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

Sl no.	Cement consumption	Basis of issue &
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Chapter – II: Scope of Works and Technical Specifications

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

2.23.3 Reinforcement Steel, MS earthing rod, GI gratings, Foundation bolts and MS Rails Consumption

The theoretical consumption of various sections and/or diameter of reinforcement and earthing rod steel 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.

2.23.3.1 Actual consumption = Issue – Surplus.

2.23.3.2 Surplus = un-tampered, unused, uncut QTY of steel **including serviceable material** returned by the contractor to BHEL store along-with relevant documents.

2.23.3.3 Wastage = Actual consumption – Theoretical consumption.

2.23.4 Reinforcement Steel, MS earthing rod, Foundation bolts and MS Rails Wastage

2.23.4.1 Allowable Wastage: (+3%) of the theoretical consumption shall be considered as allowable wastage.

Wastage and scrap shall be as per actual weightment basis.		
Sl no.	Reinforcement steel & MS earthing rod	Basis of issue & penal recovery
R-1	Theoretical consumption (without considering wastage and scrap or loss)	Free
R-2	Wastage limited to plus THREE percent (+3%) of aforesaid theoretical consumption (R-1) towards allowable wastage.	Free

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

R-3	Wastage beyond THREE percent (+3%) of the theoretical consumption above (R-1).	Penal rate
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2.23.5 Structural Steel (Rolled Sections and Plates etc.) Consumption

The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard. No extra shall payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

2.23.5.1 Actual consumption = Issue – Surplus.

2.23.5.2 Surplus = un-tempered, unused, uncut quantity of steel **including serviceable material** returned by the contractor to BHEL store.

2.23.5.3 Wastage = Actual consumption – Theoretical consumption.

2.23.6 Structural Steel Wastage

2.23.6.1 Allowable wastage: 4% (FOUR percent) of the theoretical consumption shall be considered. Wastage shall be considered as cut pieces and scrap material, measured as per actual weightment basis. Invisible wastage, if any, shall be considered to be included in the specified 4 % allowable wastage.

Sl no	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
S-2	Wastage limited to plus four percent (+4%) of the aforesaid theoretical consumption (S-1) towards allowable wastage.	Free
S-3	Wastage beyond four percent (4%) of the aforesaid theoretical consumption (S-1).	Penal rate

2.24 Reconciliation of Materials:

2.24.1 The contractor shall submit a reconciliation statement of cement and steel issued to the contractor with each RA Bill.

2.24.2 At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material is available in the contractor custody at site.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

2.24.3 At the time of submission of bills, 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.

2.24.4 The reference drawings for actual material consumption to be used for the purpose of reconciliation shall be drawings prepared by the BHEL and drawings approved by BHEL for fabrication works and such other drawings approved by BHEL. This shall also include the bar bending schedule prepared by the contractor and approved by BHEL.

2.25 Recovery of Materials (Penal Rates):

If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates if material Supply is in BHEL SCOPE:

Sl. No.	Item	Penal rate (Rs)
P-1	Cement (OPC/ PPC/ PSC).	6,500 per MT
P-2	Reinforcement steel and MS earthingrod/GI flat	65,000 per MT
P-3	Chequered Plates(if supplied by BHEL) and MS plates	65,000 per MT
P-4	MS Flats, beams, channel, angels etc. (Rolled Sections)	60,000 per MT
P-5	Foundation bolts if supplied by BHEL	90,000 per MT

Please note Penal Rate will be 1.3 Times the actual cost to BHEL or Rate mentioned in Table whichever is higher.

2.26 Procurement and Testing of Materials by Contractor:

Material required for the entire job (other than issued by BHEL as explained above) like sand, aggregates, BHEL issued Cement, windows, doors, ventilators, rolling shutter, sanitary fixtures, painting & finishing material, all embedment's/inserts and all other material required for the completion of entire scope, has to be arranged by the contractor, except those specifically indicated as BHEL scope of supply. BHEL/PVUNL reserves the right to reject any material not found satisfactory. Apart from the above, it shall be the responsibility of contractor to get materials procured from outside from approved vendors/source, should get laboratory approved by BHEL/PVUNL to ascertain the quality if insisted by BHEL/PVUNL.

Rate quoted shall be inclusive of all such contingencies and no additional payment shall be made on this account. For this purpose, sample shall be collected at site in presence of BHEL/PVUNL representative.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

Bidders are requested to have pre-bid visit/ inspection of site to make them fully acquainted with the site situation & nature of job. No claim shall be entertained at later date on account of non-familiarization of site condition.

Bidders may fix up their site visit in consultation with below mentioned contact person:

Sh S K Parida BHEL Site Office 3x800 MW PVUNL Patrattu STPS Email: skparida@bhel.in Ph no: +91-9687690998	Sh Anand Kumar PSWR Nagpur Email: aanand@bhel.in Ph. No: +91-7387356299
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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl. No.	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.1	ESTABLISHMENT			
3.1.1	FOR CONSTRUCTION PURPOSE:			
a	Open space for office (as per availability)	Yes		BHEL may provide free of charge limited open space for office and store as and where made available by its customer. Also refer clause no. 3.9.2
b	Open space for storage (as per availability)	Yes		
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipments, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc		Yes	
f	Firefighting equipments like buckets, extinguishers etc		Yes	
g	Fencing of storage area, office, canteen etc of the bidder		Yes	
3.1.2	FOR LIVING PURPOSES OF THE BIDDER			
a	Open space for labour colony (as per availability)		Yes	
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	
3.2.0	ELECTRICITY			

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl. No.	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.2.1	Electricity for construction 415 V (To be specified whether chargeable or free)			
a	Single point source of 415 V	Yes		Chargeable. Bidder to make their own arrangement of distribution of electricity at its own cost.
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.2	Electricity for the office, stores, canteen etc of the bidder (to be specified whether chargeable or free)			
a	Single point source		Yes	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc		Yes	Contractor has to make his own arrangement.
a	Single point source		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl. No.	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.3.0	WATER SUPPLY			
3.3.1	For construction purposes:(to be specified whether chargeable or free)			
a	Making the water available at single point	Yes		Chargeable. Please refer clause 2.14
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.2	<u>Water supply for bidder's office, stores, canteen etc</u>			
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<u>Water supply for Living Purpose</u>			Contractor has to make his own arrangement.
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl. No.	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.4.0	LIGHTING			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3 At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, etc during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
3.5.0	COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER			
a	Téléphone, fax, internet, intranet, e-mail etc.		Yes	
3.6.0	COMPRESSED AIR wherever required for the work		Yes	
3.7.0	Demobilization of all the above facilities		YES	
3.8.0	TRANSPORTATION			
a	For site personnel of the bidder		Yes	
b	For bidder's equipments and consumables (T&P, Consumables etc)		Yes	

Sl.No.	Description PART II 3.9.0 ERECTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.9.1	Engineering works for construction:			NOT APPLICABLE
a	Providing the erection/constructions drawings for all the equipment covered under this scope	Yes		
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl.No.	Description PART II 3.9.0 ERECTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
c	As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes		Yes	Changes are to be marked in drawing & handover to BHEL on completion of work.
d	Shipping lists etc for reference and planning the activities			NOT APPLICABLE
e	Preparation of site erection schedules and other input requirements		Yes	In consultation with BHEL
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly erection schedules based on Sl No. e		Yes	In consultation with BHEL
h	Daily erection / work plan based on Sl No. g		Yes	In consultation with BHEL
i	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
j	Preparation of preassembly bay			NOT APPLICABLE
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor/bidder himself			NOT APPLICABLE
L	Arranging the materials required for preassembly			NOT APPLICABLE

3.9.2 BHEL may provide free of charge limited open space, for office & storage shed, as and where made available by Customer (PVUN). It is the responsibility of the contractor to construct sheds, provide all utilities and dismantle and clear the site after completion of work or as and when required, as a part of his scope of work.

Note: Due to space constraint at site, contractor may have to arrange for open space for Batching Plant, Storage Area etc. outside the plant premises. Any cost implication of the

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

same shall be to the account of contractor and no extra payment shall be made for any such arrangements made by contractor (if required)..

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps AND MME TO BE DEPLOYED BY CONTRACTOR

4.1 Tools & Plants:

Nos of T&Ps to be deployed at site shall be decided with respect to monthly plan and review formats (F 14) based on site requirement. Below given Nos are tentative for planning purposes by the bidder.

Sl. No.	Description of T&P	Quantity
1	Concrete batching plant (minimum 20 Cum/Hr)	01 No
2	Concrete Pump (50 Cum/Hr min capacity & lift 60M) -	01 No
3	Concrete Transit Mixer	03 Nos
4	Concrete Boom placer	As per Requirement
5	Electrical Winch (of required capacity)	02 Nos
6	Vibrators (electrical/diesel)	6 Nos.
7	Air Compressor/ Air Blowers	1 Nos
8	Concrete Breaker (HILTI/STANLEY) –	1 Nos
9	Welding Machine	2 Nos
10	Self-priming Dewatering pump of various capacity (Diesel/Electric) From 3HP to 10 HP	2 Nos
11	Curing / dewatering pump – 1.5 / 2 HP	4 Nos
12	Hydraulic Excavator /Poclain	01 Nos
13	Hydraulic Excavator /Poclain with Rock breaker	As per requirement
14	JCB	02 Nos
15	Crane (14 T cap)	01 No
16	Trailer (20 MT Cap)	01 No
17	Tractor mounted Grader/Loader	01 Nos
18	<ul style="list-style-type: none"> Ply Shuttering board with adequate supporting structure – (Old steel shuttering plates will not be allowed). Steel shuttering (fare face) 	Lot (As per requirement)
19	<ul style="list-style-type: none"> Pipe Scaffolding, Clamps / Swivel Couplers (One/Two Way), Props, Jacks, Screw Nos, MS Pipes, Wooden Battens, Planks, Bullies, H Frames, Tie Rods with Nuts, Adjustable Acro Span (Considering Individual Areas) 	As per requirement.
20	Dumper	As per Requirement
21	Reinforcement bending machine	1 Nos
22	Reinforcement cutting machine	1 Nos
23	MS scaffolding pipe with matching Couplers	As per requirement
24	Plate Compactor	02 Nos
25	Total Station	01 Nos
26	Auto level & staff	02 Nos

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Chapter – IV: T&Ps AND MME TO BE DEPLOYED BY CONTRACTOR

27	Mini Vibro Roller	As per Requirement
28	Vibro roller 10-12MT	1No
29	Water Tanker	02 Nos
30	All Equipment for area lighting like Halogen bulbs and Portable Light Towers etc for General Area Illumination	As per requirement
31	COMPUTER with printing/photocopying & CD writing facility	2 sets
32	COMMUNICATION Facilities – Landline, WLL, Mobile, FAX, etc.	As per requirement
33	<u>DG Set – 1 nos, Capacity 125 KVA</u>	
34	<u>Water sprinkler- 1 no , water sprinkling on daily basis</u>	

4.2 Measuring and Monitoring Devices (MMD)

To be finalized at site as per requirement.

FIELD QUALITY LAB EQUIPMENTS

1. Automatic compression testing machine(2000KN) – 1no
2. Cube moulds (150mm size) –36 nos
3. Slump cone with tamping rod – 05 no
4. Sieves of different sizes for fine & coarse aggregate testing – 1 set
5. Core cutter test apparatus – 05sets
6. Oven (capacity 120ltr, range – 250c) – 1no
7. Moisture container(steel/aluminum) – 06nos
8. Rapid moisture meter – 02nos
9. VICAT apparatus with plungers for cement testing – 1set
10. Cube moulds (70mm size) – 06nos
11. Physical balance – 02no.
12. Automatic vibration m/c – 01 no.
13. Jars – 4 nos.

4.3 Computer Infrastructure: The successful bidder(s) will have to establish computerized project management system along with One no Diploma in Civil Supervisor with sufficient computer knowledge (knowledge of MS office) and the following are the minimum requirements of the system:

- 4.3.1 The bidder will have to install 1 nos PCs (multimedia PC work station Core i3/i5,1 GHZ or above, 320 GB HDD, 4 GB RAM, 100 MBPS LAN card of DELL/HP/ASUS or equivalent make with window 10 O/S with required accessories like mouse, keyboard, UPS and required software like MS Office 2010 Professional, AutoCAD 2011, ADOBE PDF CREATOR (version 8.0) with one no laser jet printer compatible for A4 and A3 size printing (ink/ cartridge

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps AND MME TO BE DEPLOYED BY CONTRACTOR

for which to be supplied as and when required, (the consumption may be assumed as 1 cartridge per month) with power backup at places, as per instruction of BHEL for exclusive use of BHEL.

- 4.3.2 Computers/printers along with technical (civil diploma) supervisor (one nos) shall remain contractor's property/ownership for all legal/technical purposes; however, contractor shall be allowed to take out/release the same after completion of the site works. Further, the computer/printer along with One nos technical supervisor shall remain/work at BHEL offices.
- 4.3.3 The contractor's technical supervisor shall provide data / information etc. in prescribed formats for periodical updating of the progress reports, Billing, daily progress report, updating of schedule and site supervision etc.
- 4.3.4 This facility has to be provided from 1st month from LOI date till completion of site works or as decided by BHEL. If contractor fails to provide computer/printer as per requirement, for a continuous period of fifteen days or more, BHEL shall have the right to purchase it at risk and cost of bidder.
- 4.3.5 **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 Rs 10000.00 per month for one computers with printer facility, if the services of computer and printer are being used by BHEL.**
- 4.3.6 **If Contractor fails to mobilize above computer infrastructure BHEL reserve the right to recover from Bidder at the rate of Rs 15000 per Month.**

NOTE:

This above list is only indicative and neither exhaustive nor limiting. Quantities indicated above are only the minimum required. Contractor shall deploy all necessary T&P to meet the schedules & as prescribed by BHEL engineer and required for completion of work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: T&Ps AND MME TO BE DEPLOYED BY BHEL ON SHARING BASIS

5.1 BHEL WILL NOT PROVIDE ANY T&P's FOR THIS WORK.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: TIME SCHEDULE

6.0 Time Schedule and Mobilization:

6.1 Initial Mobilization and Time Schedule:

The successful bidder shall mobilize resources (manpower, T&Ps etc.) to start the work within 15 days from date of issue of LOI. A detailed resource deployment plan and work completion plan (L-2 Schedule) shall be submitted by the contractor within 7 days of LOI.

The actual date of start of work (DOS) for the scope of work will be certified by BHEL site in-charge/CM after adequate mobilization of manpower, T&P by the contractor. This certificate date will be deemed as start of work of the Contract at site for purpose of the contract time schedule.

The successful bidder has to subsequently augment his resources in such a manner that the entire works are completed within the **contract period of (13) Thirteen months** from actual date of start in a manner required by BHEL to match with the project schedule.

6.2 Contract Period and Schedule of Completion:

The entire work under the scope of this contract shall be carried out in such a manner that the following listed major milestones are achieved as per completion schedule given against each activity & released for erection by other agency.

Sl No.	Civil work of following Activity	Period of release of fronts from DOS
1	Balance Works of DM Plant	2 Months
2	Balance Works of PT Plant Chemical House	5 Months
3	ACWTP	3 Months
4	CLO2 Building Construction	4 Months
5	ETP Civil Building Construction	6 Months
6	STP Civil Building Construction	8 Months
7	Other Civil Works of Water treatment Package	12 Months
8	Misc. works and handing over	13 Months

6.3 PROVISION OF PENALTY IN CASE OF SLIPPAGE OF INTERMEDIATE MILESTONES:

In case of slippage of Two Major Intermediate Milestones, mentioned as M1 & M2 hereunder, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to F-14.

Milestones	Civil work of following Activity	Period of release of fronts from DOS
M1	Balance Works of PT Plant Chemical House	5 th Month
M2	STP Civil Building Construction	8 th Months

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: TIME SCHEDULE

Note: Refer clause no 8 of NIT “Annexure-12” regarding modalities against provision of penalty in case of slippage of Intermediate Milestones.

Notes:

- Common activities like Plant roads, drains, fencing, paving and other misc. works etc. shall be completed in Phase wise manner / Instruction of Engineer within the Contractual time.
- Contractor shall note that individual milestones as above shall be achieved as per schedule furnished above.

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Chapter – VII: TERMS OF PAYMENT

7.0 Terms of Payment:

7.1 Progressive Payment / Final Payment:

The payments for works under the scope of this contract shall be as per clause no 2.6; clause 2.22; clause 2.23 of General Conditions of Contract and Chapter X of Special Conditions of Contract. However, Clause No. 10.5 on RA Bill Payments, in Volume-IB, Chapter-X of SCC, is revised as under:

The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc. and other dues in the meanwhile.

Few points of consideration are as below:

7.1.1 The measurements sheets of work done in a month shall be submitted in triplicate duly agreed/signed by BHEL Engineer. The contractor shall extend all necessary assistance for verification of measurements of works without any extra cost.

7.1.2 The RA bill payments are interim payments and bills shall be submitted in prescribed formats.

7.1.3 BHEL will release payment through **Electronic Fund Transfer (EFT)/RTGS**.

7.1.4 Final bill shall be submitted after completion of works and upon material reconciliation along with all prescribed formats.

7.2 In order to facilitate part payment, BHEL Site Engineer at his discretion may further split the contracted rates/percentages to suit site conditions, cash flow requirements according to the progress of work as per Vol. IC - GCC clause 2.23.1 (v), however following points are to be noted:

- a) Provided no 'part' payment is recommended till 25% of work in the item rate is executed.
- b) Payment of item rate to be made in not more than three instalments, last stage payment to be not lower than 20% of the item rate.

7.3 Extra/Supplementary items of work:

The works shall be regulated as per clause no 2.15 and clause no 2.16 of General Conditions of Contract.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes and Other Duties

TAXES, DUTIES, LEVIES (Rev 14 dated 09/10/2020)

1. All taxes excluding GST, GST Cess & BOCW Cess but including, Royalties, fees, license, deposits, commission, any State or Central Levy and other charges whatsoever, if any, shall be borne by you and shall not be payable extra.
2. Any increase of the taxes excluding GST, GST Cess & BOCW Cess, at any stage during execution including extension of the contract shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements. Please note that since GST on output will be paid by BHEL separately as enumerated below, your quoted rates/ price should be after considering the Input Credit under GST law at your end.
3. **GST :**
The successful bidder shall furnish proof of GST registration .GST along with Cess (as applicable) legally leviable & payable by the successful bidder as per GST Law, shall be paid by BHEL. Hence Bidder shall not include GST along with Cess (as applicable) in their quoted price.
4. GST charged in the Tax Invoice/Debit note by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return
5. E-invoicing under GST has been implemented with effect from 1st October 2020 for all the taxable persons having turnover more than the threshold limit in any preceding financial year from 2017-18 onwards. Therefore, for all the taxable persons falling under the purview of E-invoice, it is mandatory to mention a valid unique Invoice Reference No. (IRN) and QR code as generated from E-Invoicing portal of the Government for the purpose of issuing a valid Tax Invoice. Only an E-invoice issued in the manner prescribed under rule 48(4) of CGST Rules shall be treated as valid invoice for reimbursement of GST amount.
If the successful Bidder is not falling under the purview of E-Invoicing then he has to submit a declaration in that respect along with relevant financial statements.
6. Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details will as below:
BHEL GSTN – As per **Annexure -1**
NAME -- Bharat Heavy Electricals Limited
ADDRESS -- Site address

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes and Other Duties

7. Bidder to immediately intimate on the day of removal of Goods (in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice to below email ids to enable BHEL to meet its GST related compliances :-

Email id ---- to be intimated later on.

In case of delay in submission of the abovementioned documents on the date of dispatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is not attributable to BHEL.

8. In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Rule 53.
9. 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 the vendor along with interest levied / leviable on BHEL, as the case may be.
10. 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 bidder along with interest levied / leviable on BHEL.
11. Way Bill: Successful Bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract.

The 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 the contractor and BHEL will not supply any Road Permit/ Way Bill for this purpose.

12. **New taxes and duties:-**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.

Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.

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Chapter-VIII: Taxes and Other Duties

In case any new tax/levy/duty etc. becomes applicable after the date of bidder's offer but before opening of the price bid, the bidder must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of the price bids. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

13. For transportation work, bidder shall declare in his quotation whether he is registered under GST, if yes, whether he intends to claim GST on forward charge basis. In absence of this declaration, BHEL will proceed further with the assumption that bidder intends not to claim GST on forward charge basis. However, in case of GST registered transporter, the amount to the extent of goods and service tax will be retained till BHEL avails the credit of GST. Further, transporter shall issue tax invoice which inter alia includes gross weight of the consignment, name of the consigner and the consignee, registration number of vehicle in which the goods are transported, details of goods transported, details of place of origin and destination, GSTIN of the person liable for paying tax whether as consigner, consignee or goods transport agency, and also containing other information as mentioned under rule 46.
14. **TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.**
15. **TDS under GST shall be deducted at prevailing rates on applicable value from the running bills.**
16. **TCS under Income Tax 1961 has been implemented with effect from 1st October 2020 for every seller having turnover more than threshold limit during financial year immediately preceding financial year in which the sale of goods is carried out, who receives any amount as consideration for sale of any goods of the value or aggregate of such value exceeding threshold limit other than export of goods or who is already covered under other provision of section 206C, collect from the buyer, TCS as per applicable rates of the sale consideration exceeding threshold limit subject to following conditions**
 - i. Buyer shall be as per clause (a) of section 206C- (1H)
 - ii. Seller shall be as per clause (b) of section 206C- (1H)

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Chapter-VIII: Taxes and Other Duties

- iii. No TCS is to be collected, if the seller is liable to collect TCS under other provision of section 206C or the buyer is liable to deduct TDS under any provision of the Act and has deducted such amount.

If Successful Bidder is falling under the purview of TCS then he has to submit a declaration in that respect along with relevant financial statements before the start of work or if bidder is falling under preview of TCS during the work in progress then bidder is compulsorily required to submit relevant financial statement in the beginning of the respective FY.

For TCS claim, vendor has to submit relevant documents required as per Income Tax Act.

17. Refer Annexure – 2 for BOCW Act & Cess Act.

ANNEXURE-1

State wise GSTIN no.s of BHEL

Sl. No	Projects under state	GSTIN
1	Andhra Pradesh	37AAACB4146P7Z8
2	Bihar	10AAACB4146P1ZU
3	Chhattisgarh	22AAACB4146P1ZP
4	Gujarat	24AAACB4146P1ZL
5	Jharkhand	20AAACB4146P5ZP
6	Madhya Pradesh	23AAACB4146P1ZN
7	Maharashtra	27AAACB4146P1ZF
8	Orissa	21AAACB4146P1ZR
9	Telangana	36AAACB4146P1ZG

ANNEXURE-2

BOCW Act & Cess Act

Bidder may please note that the sub-contractor/bidder of BHEL engaging building or construction worker in connection with building or other construction work, are required to follow the procedures enumerated below:

1. It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
2. It shall be sole responsibility of the contractor engaging Building Workers in connection with the building or other construction works in the capacity of employer to apply and

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Chapter-VIII: Taxes and Other Duties

obtain registration certificate specifying the scope of work under the relevant provisions of the Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 from the appropriate Authorities.

3. It shall be responsibility of the contractor to furnish a copy of such Registration Certificate within a period of one month from the date of commencement of Work.
4. It is responsibility of the contractor to register under the Building and other Construction Workers' Welfare Cess Act, 1996 and deposit the required Cess for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 at such rate as the Central Government may , by notification in the Official Gazette, from time to time specify. However, before registering and deposit of Cess under the Building and other Construction Workers' Welfare Cess Act, 1996, the contractor will seek written prior approval from the Construction Manager.
5. It shall be sole responsibility of the contractor as employer to get registered every Building Worker, who is between the age of 18 to 60 years of age and who has been engaged in any building or other construction work for not less than ninety days during the preceding twelve months as Beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996.
6. It shall be sole responsibility of the contractor as employer to maintain all the registers, records, notices and submit returns under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
7. It shall be sole responsibility of the contractor as employer to provide notice of poisoning or occupation notifiable diseases, to report of accident and dangerous occurrences to the concerned authorities under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the rules made thereunder and to make payment of all statutory payments & compensation under the Employees' Compensation Act, 1923.
8. It shall be the responsibility of the sub-contractor as employer to make payment/deposit of applicable cess amount on the extent of work involving building or construction workers engaged by the sub-contractor within a period of one month from the receipt of payment. It shall also be responsibility of the Contractor to furnish BHEL on monthly basis, Receipts/ Challans towards Deposit of the Cess under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder along with following statistics :
 - (i) Number of Building Workers employed during preceding one month.
 - (ii) Number of Building workers registered as Beneficiary during preceding one month.
 - (iii) Disbursement of Wages made to the Building Workers for preceding wage month.

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- (iv) Remittance of Contribution of Beneficiaries made during the preceding month
9. BHEL shall reimburse the contractor the Cess amount deposited for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder. However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contribution of Beneficiaries remitted.
 10. It shall be responsibility of the Building Worker engaged by the Contractor and registered as a beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 to contribute to the Fund at such rate per mensem as may be specified by the State government by notification in the Official Gazette. Where such beneficiary authorizes the contractor being his employer to deduct his contribution from his monthly wages and to remit the same, the contractor shall remit such contribution to the Building and other construction Workers' Welfare Board in such manner as may be directed by the Board , within the fifteen days from such deduction.
 11. Bidders may please note that though the quoted price is exclusive of BOCW (which will be reimbursed by BHEL as per sub-clause 9 above) , however, If at any point of time during the contract period, non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder is observed, BHEL reserves the right to deduct the applicable cess (1%) on the contract value and penalty (if any, imposed by Cess Authorities) from the payables on account of non-compliance.
 12. The contractor shall declare to undertake any liability or claim arising out of employment of building workers and shall indemnify BHEL from all consequences / liabilities / penalties in case of non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

CHAPTER IX – Technical Specifications and Plot Plan

9.0 Following Technical Specifications shall be integral parts of this tender as Vol-I-E:

SL. NO	DOCUMENTS
1.	Section C: Specific Technical Specification
2.	Section D: General Technical Specification

TECHNICAL CONDITIONS OF CONTRACT (TCC)

CHAPTER X – Tentative Manpower Requirements

Tentative Manpower Requirements:

- (a) **Project manager – 01** with adequate experience of minimum 15Years in Industrial Foundation, Building & Structural Works, Power Plant Civil & architectural Works.
- (b) Experienced Civil Engineers: 2 Head
- (c) Experienced Foreman / Supervisors – 4heads
- (d) Planning & Billing Engineer – 01 heads
- (e) Stores, Gate Pass – 01 heads
- (f) Accounts & Administration- 01 head
- (g) Quality Control Engineer/Chemist – 01 head
- (h) Quality Control Supervisors – 01 heads
- (i) Safety Engineer (officer) – as per HSE manual for 3x800MW PVUNL Patratu STPS
- (j) Surveyor – 02 heads capable to handle total station
- (k) Operator, Licensed Electrician, Mechanic - As per requirement
- (l) Experienced Carpenters & Helpers – lot for similar nature of work
- (m) Experienced Bar Benders & Helpers – lot for similar nature of work.
- (n) Security Guards (Round The Clock) – As per requirement

10.0 Deputation of above man-power shall be jointly decided at site in line with construction schedule.

10.1 Engineer/ supervisor for other functions like store & purchase, material management, planning, finance, administration & liaison etc are to be provided as per site requirement and not considered above.

10.2 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 50,000.00 per man-month for engineer, Rs 35,000.00 per man-month for the supervisor/safety officer/chemist and Rs. 30,000 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.

10.3 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.

10.4 In addition to above, a well experienced qualified engineer to be designated, as 'Project Co-coordinator', shall be deployed by the contractor. Such engineer shall have adequate exposure on the job and shall remain fully involved in all planning activities, guidance etc. to contractor's own team during the complete execution period of contract.

The contractor should also submit the fitness/calibration certificate for T&Ps regularly and renew as per applicable IS standards and statutory requirements. The tools & tackles shall not be removed from site without written permission of BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
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.			
a	Depth from ground level but not exceeding 2 m	CUM	5000.0	0.1986997949
b	Depth exceeding 2 m but not exceeding 4 m	CUM	2000.0	0.0995428099
c	Depth exceeding 4 m but not exceeding 6 m	CUM	500.0	0.0310589000
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			

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	(wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.			
a	Depth from ground level but not exceeding 2 m	CUM	12956.8	0.7648568260
b	Depth exceeding 2 m but not exceeding 4 m	CUM	6596.0	0.4682595249
c	Depth exceeding 4 m but not exceeding 6 m	CUM	205.0	0.0174797946
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 thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.			
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	12157.4	0.4409198067
A108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including re-excavation of stacked			

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.			
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	12565.0	0.2181550127
109	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.			
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	1545.0	0.0059609938
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	13855.0	0.0534560322
A111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 300 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	455.0	0.3319656254
B111	Supplying and filling clean and well graded sand conforming to IS 383 with grading Zone I to III upto any depth under floors, around foundations, plinths, tank foundation etc. in layers not exceeding 200 mm thickness and compacted so as to achieve at least 85% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by mechanical means, dressing, royalty (if any) etc. all complete.	CUM	300.0	0.2298223560

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
200	CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.			
201A	Providing at Batching Plant and/or Volume Batch Mixer 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. (BHEL will supply Cement free of Cost as per TCC)	CUM	250.0	0.3118429306
201B	Transportation to site and pouring 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	250.0	0.1227887568
202A	Providing at Batching Plant and/or Volume Batch Mixer 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	CUM	1052.1	1.3123697666

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	level etc. (BHEL will supply Cement free of Cost as per TCC)			
202B	Transportation to site and pouring 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	1052.1	0.5167481317
203A	Providing at Batching Plant and/or Volume Batch Mixer 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. (BHEL will supply Cement free of Cost as per TCC)	CUM	105.0	0.1309740309
203B	Transportation to site and pouring 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	105.0	0.0515712778
204A	Providing at Batching Plant and/or Volume Batch Mixer 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.(BHEL will supply Cement free of Cost as per TCC)	CUM	55.0	0.0629820476

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
204B	Transportation to site and pouring 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	55.0	0.0270135265
205	Providing and laying 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 complete including use of plasticizer/superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.(BHEL will supply Cement free of Cost as per TCC)			
205A	Providing at Batching Plant 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 complete including use of plasticizer/superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.(BHEL will supply Cement free of Cost as per TCC)			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
a	M 25 Grade	CUM	3458.3	4.5872735444
b	M 30 Grade	CUM	1000.0	1.3388122105
205B	Transportation to site and laying 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 complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.			
a	M 25 Grade	CUM	3458.3	1.7238968655
b	M 30 Grade	CUM	1000.0	0.4984856991
206	Providing and laying 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 complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.(BHEL will supply Cement free of Cost as per TCC)			

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
206A	Providing at Batching Plant 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 complete including use of plasticizer/superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.(BHEL will supply Cement free of Cost as per TCC)			
a	M 25 Grade	CUM	2545.94	3.364328489
206B	Transportation to site and laying 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 complete including use of plasticizer/superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.			
a	M 25 Grade	CUM	2545.9	1.2691131106
211	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.			

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	(Payment of welded wire mesh, chicken wire mesh shall be made separately)(BHEL will supply Cement free of Cost as per TCC)			
211A	Providing at Batching Plant for 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. (Payment of welded wire mesh, chicken wire mesh shall be made separately)(BHEL will supply Cement free of Cost as per TCC)			
b	M 25	CUM	30.0	0.0374211517
211B	Transportation to site 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. (Payment of welded wire mesh, chicken wire mesh shall be made separately)			
b	M 25	CUM	30.0	0.0147346508
212	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.(BHEL will supply Cement free of Cost as per TCC)			

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
212A	Providing at Batching Plant and/or Volume Batch Mixer for 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.(BHEL will supply Cement free of Cost as per TCC)			
a	01:02:04	CUM	265.0	0.3305535064
212B	Transportation to site and laying 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	265	0.1301560822
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent 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.(BHEL will supply			

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	Cement free of Cost as per TCC)			
213A	Providing at Batching Plant Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent 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.(BHEL will supply Cement free of Cost as per TCC)			
a	M25	CUM	15.0	0.0224087070
b	M30	CUM	195.00	0.293645502

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
213B	Transportation to site and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent 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.			
a	M25	CUM	15.0	0.0230626801
b	M30	CUM	195.00	0.2998148411
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	be ensured including structural grouting if required.(BHEL will supply Cement free of Cost as per TCC)			
214A	Providing at Batching Plant Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required. (BHEL will supply Cement free of Cost as per TCC)			
b	M30	CUM	2214.4	4.0838089068
214B	Transportation to site and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	recommendation 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.			
b	M30	CUM	2214.4	1.2781125792
215	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.			
a	Plain cement concrete of all grades	CUM	15.00	0.0060362297
b	Reinforced cement concrete of all grades	CUM	53.6	0.0326370278
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement.	CUDM	505.0	0.0142234329
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on	SQCM	55	0.0001273222

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	the cross sectional area of reinforcement cut.			
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	505.0	0.0561143654
220	Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm.(BHEL will supply Cement free of Cost as per TCC)	CUM	205.00	0.3441383992
223	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	55.0	0.0574435320
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			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	following.			
A301	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	19715.6	5.0813086922
A302	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface above finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	26078.8	8.0997930122
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	50.0	0.0047263543
b	Pockets of depths more than 150mm and upto 300 mm depth	EACH	50.0	0.0078515356
c	Pockets of depths more than 300mm and upto 600 mm depth	EACH	300.00	0.0833381664
d	Pockets of depths more than 600mm and upto 1000 mm depth	EACH	30.0	0.0129752895
e	Pockets of depths more than 1000mm and upto 1500 mm depth	EACH	30.0	0.0186584895
f	Pockets of depths more than 1500mm and upto 2000 mm depth	EACH	30.00	0.024607909

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
305	Extra over item no.301 and 302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.			
a	Extra for Curve Shuttering for Item No. 301/A301	SQM	605.0	0.0312788201
b	Extra for Curve Shuttering for Item No. 302/A302	SQM	605.00	0.037581269
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 for the following:			
401	Providing, straightening, cutting, bending, placing in position at all level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	5.0	0.1548739508
403	Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming 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. (BHEL will provide TMT free of Cost as per TCC)	MT	732.5	3.8748507276

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.			
a	12mm Reinforcement bar	Nos.	55.0	0.0090186557
b	16mm Reinforcement bar	Nos.	55.0	0.0141539844
c	20mm Reinforcement bar	Nos.	55.0	0.0197986019
A406	Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
d	25mm dia	Nos.	55.0	0.0036286827
e	28mm dia	Nos.	55.00	0.0056021767
f	32mm dia	Nos.	55.0	0.0064509914
g	36mm dia	Nos.	55.0	0.0083396040
407	Providing, straightening cutting, bending, placing in position at any level, binding of mild steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	5.00	0.169741017
408	Providing, straightening, cutting, bending, placing in position at any level, binding in position high yield strength steel TMT reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	5.0	0.1697410167
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			
502	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.(BHEL will supply free of Cost as per TCC)	SQM	3175.0	0.1286243575

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric, polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge.	SQM	3175.0	1.3352433307
507	Providing and laying wearing course consisting of 25 mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.(BHEL will supply Cement free of Cost as per TCC)	SQM	2355.0	0.7541525324
A507	Providing and laying wearing course consisting of 20 mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all	SQM	475.0	0.1337847648

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	complete.(BHEL will supply Cement free of Cost as per TCC)			
510	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	SQM	525.00	0.1150529686
A510	Providing and laying Pressed Precast cement concrete flooring tiles of 20mm thickness and size 300X300 mm conforming to IS 13801 with 15 mm thick 1:4 cement mortar over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	SQM	50.0	0.0120763176
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 /	SQM	13005.0	0.7827537281

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	ash including surface preparation etc. all complete.			
A513	Providing and mixing superplasticizer cum water proofing compound conforming to IS:2645/9103 in concrete or cement mortar all complete.	KG	205.00	0.009095821
A514	Providing and applying concrete structures two coats of ERPB (Epoxy resin based anticorrosive and chemical resistant paint) over a coat of CPCI (concrete penetrating bipolar corrosion inhibitor) with minimum 150 micron DFT for protection of concrete against carbonation and chloride penetration in saline/marine environment all complete of approved make and as per manufacturer's recommendation	SQM	200.0	0.0160133052
B514	Providing and applying two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by epoxy phenolic coating (solid by volume minimum 63%) of minimum 400 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams, wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384 complete all as per specifications & drawings.	SQM	3805.0	1.8002266008

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
D514	Providing and applying Food grade epoxy coating complying to FDA Ttitle 21, Part 175.300 of minimum 400 micron DFT over absolutely dry, clean and dust free surafe of water reating structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862 ,complete as per specifications & drawings.	SQM	180.00	0.096742439
E514	Providing and applying to internal surfaces of the liquid retaining/conveying RCC structures, 1.5 mm thick acrylic based polymer modified cementitious composite coating system (2 layers) as per specification and direction of engineer in charge.	SQM	3010.0	0.6360042338
F514	Same as itme E514 but for external surface with addition of fine silica /quartz sand of 0.6 mm nominal size to the coating mix as per specification and direction of engineer in charge.	SQM	3910.0	0.8806212441
517	Providing and laying foam concrete blocks in the toilets/sunken slab etc. complete as directed by engineer in charge.	CUM	105.0	0.0952833036
518	Anti termite and Anti weeds chemical treatment of soil with Chloropyrifos emulsifiable or equivalents, concentrates (1%) conforming to IS :8944 all complete.	SQM	1505.00	0.5920504772
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			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.			
a	12 mm wide joints.	SQM	380.0	0.0869417705
b	20 mm wide joints	SQM	35.0	0.0117753743
c	25 mm wide joints	SQM	512.0	0.2088022327
d	50 mm wide joints	SQM	55.0	0.0429500217
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	2455.0	0.3997183972
A604	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.			
b	12mm X 25mm	RM	1300.0	0.0220691811
c	20mmX25mm	RM	1300.0	0.0265833318
608	Supplying and filling in position hot applied bitumin sealing compound (Grade B) 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	105.0	0.0019850688
b	12mm X 25mm	RM	295.0	0.0050080065
c	20mmX25mm	RM	105.0	0.0021471153

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A609	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicon or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:Note: The sealant should have VOC content limited to 250 grams per litre . All necessary documentation (certificates, manufacturer declarations) to be provided by the contractor to engineer in charge.			
a	12mmX25mm	RM	105.0	0.0063603226
b	25mmX25mm	RM	2945.0	0.2851997960
c	50mmX25mm	RM	105.0	0.0175010149
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	2855.2	0.2258318275
612	Providing and applying approved fire retardant sealant in joints/openings including cleaning of joints/openings, raking out groove, application of primer, scaffolding etc. all complete.			
a	25mmX25mm	RM	205.00	0.1043251088
b	50mmX25mm	RM	205.00	0.2030345371
615	Providing and fixing 300 mm wide Stainless steel strips (Grade SS 316) over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	55.0	0.0128595421
700	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment,			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	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	10.0	0.4014661837
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	1.43	0.0693579189
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	5.0	0.0453903638
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	5.00	0.0494916819

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
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	205.0	0.0063275275
b	PVC pipes / conduits of all diameters	kg	19905.00	2.918340542
c	UPVC pipes / conduits of all diameters	kg	205.0	0.0341686482
d	Expansion anchor fasteners (galvanised) of HILTI make(HRD Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:			
i	8mm Dia	Nos	55.00	0.0011883405
ii	10mm Dia	Nos	55.0	0.0013368831
iii	12mm Dia	Nos	55.0	0.0015066460
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	HST3 M8	Nos	155.0	0.0104654989
ii	HST3 M10	Nos	155.0	0.0151899241
iii	HST3 M12	Nos	155.0	0.0248181831
iv	HST3 M16	Nos	155.00	0.0437756869
v	HST3 M20	Nos	155.0	0.0898836849
vi	HST3 M24	Nos	155.0	0.1460385619
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:			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
i	HAS-E5.8 M8	Nos	155.00	0.0219476463
ii	HAS-E5.8 M10	Nos	155.0	0.0254760145
iii	HAS-E5.8 M12	Nos	155.00	0.0313366939
iv	HAS-E5.8 M16	Nos	155.0	0.0526863116
v	HAS-E5.8 M20	Nos	155.0	0.0860563024
vi	HAS-E5.8 M24	Nos	155.0	0.1149410794
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	10.00	0.3667573807
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.			
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	SQM	55.0	0.0141327641
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement	CUM	15.00	0.1342033848

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	:1 sand) using non shrink admixture etc. all Complete.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
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).(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	CUM	20.0	0.1749098350
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	10.0	0.1677797919
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	CUM	10.00	0.1836410513

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	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).			
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.			
901	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects including sand paper smoothening, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately)	CUM	10.0	0.6505315539
902	Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preperation of working drawings,godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops	SQM	55.0	0.1090302428

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)			
A903	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anoidised aluminium color dyed), finish flat oil paint confirming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately) (Note: All particle board shall have recycled content. The bidder is required to provide material cutsheet sample/ declaration from manufacturer mentioning the percentage of recycled content used in maufacturing of particle board to the engineer in charge)	SQM	30	0.0490884950

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
904	Providing and fixing single or double steel door shutters with 45 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	35.0	0.1067886005
A904	Providing and fixing single or double steel door shutters with 35mm (min) 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	75.0	0.1779810008
905	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	20.0	0.0658448680

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A906	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 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed 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 toughened glass of 8/10/12 mm 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	1230.00	0.2987309356
A907	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings panic bar ,panic trim, shop painting with approved post office/signal red color fire resistant paint and mineral wool	SQM	185.0	2.2851535970

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification.all hardware used in the door should be fire rated and from approved manufacturer. Minimum ratings shall be 2 Hrs.Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.			
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	30.0	0.0313096861
b	fixed type	SQM	30.0	0.0207535184
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing,grills 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-metalic protection etc. including	Kg	1320.0	0.2887667466

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	<p>preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.All aluminium frames to be used shall have recycled content meeting required strength criteria for frame work as per engineer incharge. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturing of frames.</p>			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A910	Providing, fabricating, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqmt) material consisting of 3mm thick Fire Retardant mineral filled Core comprising of around 70% Inorganic compound which is 100% non-combustible mineral and balance 30% is food grade virgin polymer Class B1 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicon sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must	SQM	270.0	0.7531774372

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months' exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel.			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
Cont... A910	<p>Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners. 2nd barrier of 1mm thk GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval. as per approved sample from Alucobond Plus, Aludecor, Reynobond or equivalent. The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware (festering straps, nuts,</p>			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturing of frames.			
911	Providing and fixing of door closers as per specification ,of approved make & quality all complete of following type :			
a	Over head hydraulic door closures as per IS 3564	Each	55.0	0.0456237879
b	Floor mounted Hydraulic door closers as per IS 6315	Each	55.0	0.0650192028
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	205.0	0.0139205604

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
913	Providing and fixing in position 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).			
a	Hand Operated	SQM	20.0	0.0242838157
b	Mechanically Operated	SQM	30.0	0.0675154895
c	Electrically operated	SQM	30.0	0.0750274993
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	20.0	0.0198854125
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.			
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	30.0	0.0296544976

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
h (a)	6 mm thick clear reflective toughened safety glass of Saint Gobain(India) or Asahi (India) or equivalent make and should have solar factor 25% or less, Maximum U-value 3.3W/SQMK, VLT min 30%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28)	SQM	30.00	0.0348979575
i(a)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick clear toughened glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, U-value less than 2.268 W/ SQMK,VLT min 30%: The glass to be used should be from the manufacturers of glass like Glavel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	30.00	0.0774160406
i(b)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted fire resistant type toughened glass and one inner 6mm thick plane fire resistant glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glass to be used should be from the manufacturers of glass like Glavel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	30.0	0.0774160406

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
i(c)	One outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick plain float glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glazing to be used in all exterior walls shall be of Asahi (India) Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent.The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance)≤ 59 %, SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) $0.2 \leq 0.32$ and U- Value 1.2 to 2.5 W/MSq K,The properties of performance and colour of glass shall be as per detail design values as approved by Architect and engineer incharge.The glass should be free from distortion and thermal stress	SQM	30.0	0.0774160406
k(a)	One inner 6mm thick clear float glass and one outer 6mm thick reflective toughened glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation . Glass to be used shall be of make Saint Gobain(India),Asahi (India) or equivalent .Outer glass should have solar factor 25% or less, Maximum U-Value of 1.8 to 3.3W/SQMK, VLT min 47%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28).The properties of performance glass shall be as per detail design values. (only single elevation area to be measured).	SQM	30.0	0.0501382048
l	6 mm thick laminated glass	SQM	30.0	0.0202098950
I(a)	10 mm thick laminated glass	SQM	55.00	0.062065355

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
m	6 mm thick clear toughened safety glass	SQM	355.0	0.3381567907
n	8 mm thick clear toughened safety glass	SQM	135.0	0.1467702093
o	10 mm thick clear toughened safety glass	SQM	30.0	0.0366649427
p	12 mm thick toughened safety glass	SQM	30.0	0.0406406594
q	12 mm thk curved toughened glass	SQM	30.0	0.0595253155
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	40.0	0.0269460071
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	40.0	0.0777514227
A919	Providing and fixing 12 mm thick double leaf automatic toughened glass sliding door of approved brand and manufacture, including fixtures, all necessary arrangement, sensor, motor, air curtain, frames, finishes, mechanical systems, electrical systems, warranty all inclusive in working condition, all complete as per specifications.	SQM	30	0.1186088809
920	Roof skylight structure for atrium with 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealant,	SQM	30.0	0.0393657089

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	screws with pvc cap, self tapping screws, epdm rubber gasket.etc all complete as per detailed drawing and specification.			
A920	Providing and erecting Roof skylight structure with 4mm thick embossed clear translucent polycarbonate IR sheet, both side UV coated, minimum 55% light transmission, solar control, approved make, texture and shade, fixed to powder coated Aluminium section with 60mm width top & bottom with EPDM rubber gasket in approved shape like dome, pyramidal etc, sealing of joints with sealant, screws with pvc cap, self tapping screws, EPDM rubber gasket.etc as per drawing, standards, specification, instruction of engineer in charge etc all complete.	SQM	55.0	0.2778584211
A921	Providing & fixing Fully Glazed Fire Rated partitions with minimum 25mm thick Hermetically sealed double glass (DGU) consisting of Fire resistant glass of minimum 11mm thick or more, clear, toughened interlayered glass, with 120 minutes' fire rated for both integrity & radiation control, and 6mm thick toughened tinted glass with 8mm gap or more as per manufacturer specification. The partitions shall be 120 minutes Fire Rated, Fully Glazed non-load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a suitable profile to accommodate the glass & fixed to the	SQM	55.0	0.3087806620

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	supporting construction by means of M 10 X 120 or bigger steel bolts at 150 mm from the edges & every 500mm c/c .The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and colour. The glass panels shall be minimum 11mm thick, clear, toughened, interlayer 120-minute fire rating for both integrity & radiation control (EW120), with 20-minute full insulation, Non-Wired Toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 2(B)2 category of impact resistance as per EN 12600. The manufacturer has to give test report /certification of glass fire rated glass and glass should have the stamp showing the value of E, EW AND EI. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass shall be held in position with minimum 1.6 mm G.I Beading, clamped or bolted to the frame profile by 4mm x 35mm steel screws at every 250 mm c/c and a ceramic tape of cross section of 5mm x 20mm on both sides of the glass. The item shall include intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) complete all respect and comply with the requirement of NBC-2016, IS16231(PART-3) and as per specification. Shop drawings for the			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.			
922	Providing and fixing electrically operated, self operable/closing, approved anodized aluminium framed glass door with 12 mm thk. tinted glass, all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within 1-9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushless motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2No both sides, rails & top & bottom as required, any other accessories as required etc. all complete of best make and quality as	NOS	10.0	1.5018269769

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each.			
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.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
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/cm ² (including cost of cement for brick making)	CUM	66.6	0.1609371111
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			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	and painting.			
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making)	CUM	1099.1	3.3203149531
b	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm ² (including cost of cement for brick making)	CUM	30.00	0.0808495962
c	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	55.0	0.1711846961
A1002	Providing Autoclave Areated concrete blocks blocks having dimensions of 625 mm x 250 mm in cement mortar 1: 6 (1 part Cement 6 parts coarse sand having modulus of fineness 1.1& suitableplasticizer) conforming to I.S. :2185(part-III) in walls, chambers etc. in thickness varying from 100mm to 300 mm at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing.	CUM	30.0	0.1197132466
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.			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making)	SQM	75.0	0.0278951363
1005	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	15.0	0.0112448651
1008	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	15.0	0.0130042264
1009	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	30.0	0.0024769955
1010	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at all level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	55.0	0.0210293832
1011	Providing and filling brick bats in soak pits all complete.	CUM	95.0	0.0457800469
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 -			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	charge.			
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. (BHEL will supply Cement free of Cost as per TCC)			
b	50mm thick	SQM	625.0	0.0892219953
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. (BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
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	3508.1	0.4006338824
1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.	SQM	5782.6	0.4551420126
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished	SQM	2636.8	0.2044868705

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	to a smooth all complete.			
1205	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	1805.0	0.1239616643
1206	Providing drip course on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instruction of engineer in charge.	RM	205.0	0.0054113941
1207	Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battens, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	1005.0	0.0158979127
1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	30.0	0.0068869735
1300	FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	(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.			
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	7056.2	0.2749677944
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	765.0	0.0433879329
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	71.6	0.0081471160
1307	Providing and applying two coats of Epoxy coating with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	SQM	2735.0	0.2532554280

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1309	Two or more coats of fire resistant transparent paint (@3.5 litre per sqm per coat) as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications. French polish payment will be made seperately.	SQM	105.0	0.0180681775
A1312	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification. Note: The paint should have VOC content limit less than 200 grams per litre All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	3195.00	0.1204863046
A1316	Providing and applying 2 mm thick Acrylic wall putty in two coats over cement plastered surfacs including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	2791.19	0.0972317731
1317	Providing and applying 2 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	105.0	0.0041726957

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1319	Providing and applying two or more coats of Premium Acrylic Smooth Paint with Silicone additives weather coat paint of approved brand and manufacture and required shade over one coat of primer of water proof cement paint 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	4020	0.451575155
1320	Providing and applying acid alkali and oil resistant high build, solvent free, self smoothing, seamless epoxy based amine cured floor finish 150 microns over primer on C.C. flooring	SQM	210.0	0.0238208259
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.			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
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 1:1.5:3 (1 cement:1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): (BHEL will Provide Cement free of cost as per TCC)	SQM	1627.9	0.4076367036
A1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring without metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): (BHEL will Provide Cement free of cost as per TCC)	SQM	205.0	0.0372171275

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 10mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete as per specification. (Quoted item rate shall be inclusive of providing glass joint strips). (BHEL will Provide Cement free of cost as per TCC)	SQM	105.0	0.0221193383
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping pigment content is 3.5 kg per 50 Kg of Cement) of size 300X300X25 thick of approved shade as per IS 1237, including minimum 25mm cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry@4.4 kg/sqm,labour,materials, etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grinding and polishing complete with laying as per IS 1443 etc.(inclusive of cost of cement for tiles manufacturing) all complete for following:(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
a	Laid in floors	SQM	155.0	0.0669193902
b	Laid in skirting	SQM	155.0	0.0959835757
A1404	Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing)			
Ab	80mm	SQM	125.0	0.0596357502
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 cement sand mortar of 1:4 (1 cement : 4 sand) 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.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	SQM	30.0	0.0269228577
1413	Providing and laying 14 to16mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 35mm thk of 1 cement : 4 sand by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet	SQM	75.0	0.0637479099

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	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.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
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.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	SQM	55.0	0.0498890815
1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 40mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
b	10mm thick tiles In flooring	SQM	782.1	0.3569745217
c	7 mm thick tiles In skirting and dado upto specific height	SQM	280.00	0.121102702

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1417	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete 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 (BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
b	10mm thick tiles In flooring	SQM	155.0	0.0707467726
c	7mm thick tiles In skirting and dado upto specific height	SQM	80.00	0.0366379272
1419	Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab / fascia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting, making corners, moulding and opening etc. all complete. (BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	SQM	55.0	0.0772633542
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 43mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete. (BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
a	300X300 mm	SQM	110.0	0.0404460185
b	600X600 mm	SQM	110.0	0.0410401887

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1421	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 600x600mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar with neat cement slurry @3.3kg/sqm all complete.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)	SQM	85.0	0.0382718955
A1421	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 300x300mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,varmora,quotone or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohr's scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk cement sand mortar of 1:3.	SQM	30.0	0.0135837006
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			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	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.Underbed shall be			
a	20mm thick	SQM	1456.84	1.4518657268
b	38mm thick	SQM	3255.0	4.4017888407
C	75mm thick	SQM	2165.0	4.9233217869
1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	1920.0	2.4149548669

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (115mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	1205.0	2.0814420839
1425	Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 18-20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be 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 moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc.	SQM	75.0	0.0865212214

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	complete.(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
A1427	Providing and fixing designer ceramic tiles of approved color and design of size 200x300mm / 300x600mm in dado of approved size of reputed / approved manufacturer (Kajaria,jhonson,varmora,quotone or equivalent) , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 45/47mm 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:NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in maufacturing of vitrified tiles to be used to engineer in charge)(BHEL will supply Cement free of Cost for Cement Sand Mortar only as per TCC)			
a	5mm thick	SQM	55.0	0.0250691043
b	7mm thick	SQM	55.0	0.0272778358
A1428	Providing and laying 2mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	30.0	0.0034235357

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1429	Providing and fixing Removable type flooring system (raised access floor) consisting of of fire resistant Cementitious panels of 600 x 600x 35 mm and Laminated with 1.2 mm thick fire retardant food grade antistatic laminate top finish to ensure max bonding to the steel surface. Cementitious panels shall be steel welded construction, with an enclosed bottom pan of 64 hemispherical and top plain sheet which are fuse welded at multiple location to form a panel. The panel is coated with 40-60-micron epoxy coat after cleaning, degreasing, phosphate by several tank processes & is heated to achieve max adhesion to the panel surface & corrosion resistance. The inner empty core of the panel is injected with a light weight fire retardant, non-combustible cementations compound at high pressure to fill in all the crevices of the panel and ensures support of not less than 90% of the top surface area of the panel. Pedestal (300mm – 800 mm) must be 25mm dia. pipe with min.2.0 mm thickness with bottom plate of 100x100x min.2.0mm thick & top plate must be 75x75x3.0 mm. All pedestal shall be tightening to Stringer of 20x30x575x1.0 mm Rectangular tube. The system shall be design for Uniformly distributed load (UDL) of 13 KN (1300 kg/ sqm), for the same all complete as per specification.	SQM	105.0	0.1641087495
1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	labour, material etc. complete as per drawing, specification and instructions of engineer in charge.			
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	205.0	0.0043501751
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	205.0	0.0082257857
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.			
A1502	METAL DECK SHEET Type-I, Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44mm of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the roof slab 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahl be of idustrial finish of product type 4 of AS/NZ2728, including fixing of sheets to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6mm dia @ 260mm c/c in the tourgh and stich screws between two adjacent sheets and sealing with epoxy sealant . Measurement of profile sheeting shall be of the plan area of the roof covered by MS trough metal decking.			
a	Span Upto 1800mm	SQM	3705.0	1.9958097721
b	Span Exceeding 1800mm and upto 2500 mm	SQM	205.0	0.1103261397
B1502	METAL DECK SHEET Type-II, Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over floor beams for cast-in-situ roof/floor slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 51 mm of grade G250			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	as per AS1397/grade SS255 as per ASTM A653M/grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the roof/floor slab 150mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahl be of idustrial finish of product type 4 of AS/NZ2728, including fixing of sheets to purlins/floor beams with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6mm dia @ 260mm c/c in the tourgh and stich screws between two adjacent sheets and sealing with epoxy sealant . Measurement of profile sheeting shall be of the plan area of the roof covered by MS trough metal decking.			
a	Span Upto 1800mm	SQM	205.0	0.1213697972

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
b	Span Exceeding 1800mm and upto 2500 mm	SQM	205.0	0.1213697972
A1503	Providing and fixing shear connectors of mild steel studs having 16 mm dia and minimum 65 mm projected length above purlin passing through metal decking as per relevant IS codes and specification. The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.	QUINTAL	5.00	0.0354501423
B1503	Providing and fixing shear connectors of mild steel studs having 19 mm dia and minimum 100 mm projected length above purlin passing through metal decking as per relevant IS codes and specification. The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.	QUINTAL	5.0	0.0354501423

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1504	Designing, providing and fixing External sheet of Permanent colour coated metal cladding with troughed M.S. sheets of minimum 0.6mm bare metal thickness of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275/ aluminium zinc alloy coating to class AZ150 on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint of 40 micron minimum DFT or super polyster paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron(nominal) and minum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahll be of idutrial finish of product type 4 of AS/NZS2728.	SQM	330.0	0.1995588918

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
B1505	Design, supply & erection of prefabricated permanent colour coated sandwiched insulated metal cladding of approved color comprising of top sheet as troughed permanently colour coated sheet and bottom sheet as plain permanently colour coated with 50 mm thick insulation sandwiched between the two sheets. Each sheet shall be of minimum 0.6 mm bare metal thickness of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250 GD as per EN 10326 with zinc coating to class Z275/ aluminium zinc alloy coating to class AZ150. The exposed face of the sheet to be permanently color coated with at least 40 micron DFT silicon modified polyester paint (SMP with silicon content of 30% to 50%) or polyester paint of minimum 20 microns (nominal) SMP or polyster paint on one side (exposed face) , over 5 micron (nominal) primer coat and minimum 10 micron (nominal) SMP or polyster paint over 5 micron (nominal) primer coat on other side. SMP and polyster paint shall conform to product type 4 of AS/NZS 2728. The sheets shall be of approved profile and shallshall have such section modulus and moment of inertia per metre width that deflection of sheets is limited to span/250 under design wind pressure for two span conditions. No increase in allowable stresses under wind load condition is allowed. The prefabrciated insulated Metal sabdwich panels shall be fixed with	SQM	55.00	0.0709002807

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	structural members below using special coated fastener conforming to corrosion resistant class 3 of AS3566 and tested for 1000 hours salt spray test, including flashings complete as per specification. The insulation shall be of bonded mineral wool of minimum thickness 50mm conforming to IS:8183, having a density of 32 Kg/cu.m. for glass wool & 48 Kg/cu.m. for rock wool and is included in this item. (payment shall be made on surface area of the cladding including flashings)			
A1508	Designing, providing and fixing Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of minimum 0.6mm bare metal thickness of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275/ aluminium zinc alloy coating to class AZ150 on both sides including fixing to supports / rails by concealed fixing system (Z purlin), corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint of 40	SQM	55.0	0.0332414108

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	micron minimum DFT or super polyester paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron(nominal) and minum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahl be of idutrial finish of product type 4 of AS/NZS 2728. 'Z' spacers of atleast 2mm thick galvansied steel sheet of garde 350 as per IS 277 would be fixed the inner sheeting on face side at runner locations all complete as per specification.			
1511	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 application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.			
a)	For insulation in Sandwitch Cladding	SQM	55.0	0.0124775755
1514	Providing and installing under deck insulation with resin bonded rock wool 50 mm nominal thickness conforming to IS 8183 having a density of 48kg/cum using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.6 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.	SQM	505.0	0.1315180439
1600	FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract			

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.			
1601	Providing and fixing glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preperation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.			
aa	12.5mm thick GRG board confirming to IS: 2095 with galvanised light gauge steel load bearing supporting GI frame (minimum 0.8mm thk and grid size of 600x1200mm.) and finished flat (seamless). All GRG board to be used should be with appropriate % of recycled content. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturing of board to be used)	SQM	55.0	0.0168967978

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density 48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc. The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate. (All mineral fiber board to be used should be with appropriate % of recycled content. The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)	SQM	370.0	0.1888465422

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1604	Providing and fixing Metal False Ceiling System of 600x600 mm module (of Armstrong/ Hunter Douglas/ Durlam make) which includes providing and fixing GI Clip, 'C' wall angle of size 20x30x20mm made of 0.5mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300mm center to centre, suspending the main C carrier of size 10x38x10mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34mm made of GI steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive) Fixing with clip in tiles into spring 'T' with GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5mm thick with 25mm height, made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and 20% perforation area with 1.8mm dia holes and having NRC of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after	SQM	55	0.0607401159

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	bending and perforation and backed with a black Glass fiber acoustical fleece. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm C/C maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A1607	<p>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.</p> <p>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%.(All mineral fiber board to be used should be with appropriate % of recycled content. The contractor should provide the</p>	SQM	285.0	0.2020989311

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)			
B1607	Providing and Fixing 12mm thick Calcium silicate board of HILUX or equivalent in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete as per architectural design and detail. Metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for	SQM	175.0	0.1750419723

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	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%.			
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	Providing and fixing galvanised MS down take pipes of 150 mm dia-Medium quality as per IS:1239(part-I) all complete.	RM	625.00	0.4386346201
1711	Providing and making Khurras 45 x45 cm with average thickness of 3cm cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate of 20mm nominal size) over PVC sheet 1m x1mx 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete in all respects as per	EACH	130.0	0.0596357502

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CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	specification and drawing.			
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.			
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	1694.52	1.5900079897
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	30.0	0.0452225300
1803	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	55.0	0.0623242163
1804	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	230.00	0.0171267648

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
1808	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	4.1	0.0190032008
1809	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	each	12.0	0.0565634655
1810	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	25	0.0891062478
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	55.0	0.0023554607
1823	Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge.	CUM	20.0	0.0176553449
1835	Providing & laying Firecrete 20 to 25 mm thick layer including curing etc. all complete over the top of fuel oil tank pad as per manufacturer's specification.	CUM	30	0.4658487755

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
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.			
A2003	Supplying and erecting in position 2.4 m high PVC coated galvanized chain linked fencing of minimum 4mm diameter (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanized steel wire for chain link fencing excluding PVC coating shall not be less than 2.5mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina 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.	RM	315.00	0.3215811497

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
	all complete. (Structural post shall be paid separately under ST No. 2008)			
2008	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	5.0	0.2075062470
2010	Supply, fabrication and installing in position and testing 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	5.0	0.2307058949
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.			
A2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks with flow rate less than 5 LPM (litres per minute) at 45 psi, including sockets, union, nuts etc all complete - 15mm nominal bore.(Note: Flow rate of all faucets at 45 psi should be less than 5 lpm. The contractor should submit the cutsheets/ declaration from the manufacturers mentioning the same to Engineer in charge.)	NOS	35.00	0.0142463200
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	45.0	0.0084553515

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
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	30.0	0.0072689401
b	50mm nominal bore.	NOS	30.00	0.0152323649
2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrsvive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:			
a	15 mm nominal bore.	RM	210.0	0.0403495622
b	20 mm nominal bore.	RM	210.0	0.0439145838
c	25 mm nominal bore.	RM	155.0	0.0360611191
d	50 mm nominal bore.	RM	115.00	0.0379362278
e	40 mm nominal bore.	RM	50.0	0.0113749691
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:			
a	15 mm nominal bore.	RM	40.0	0.0059571356
b	20 mm nominal bore.	RM	40.0	0.0066361873
c	25 mm nominal bore.	RM	190.00	0.0359935997
d	50 mm nominal bore.	RM	190.00	0.0544668933
e	40 mm nominal bore.	RM	30.0	0.0059635750
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	15.0	0.0073094517

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A2106	Providing and fixing 600mmx900mmx6mm thk mirror from reputed mirror manufacturer, edge mounted with teak beading and minimum 12mm thick plywood backing. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	15.0	0.0072888139
A2108	Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete.	NOS	15.00	0.0037548435
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	25	0.0062696537
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	NOS	40.0	0.0074695690
2113	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete.	NOS	15.0	0.0021413279
A2114	Providing & fixing in position Polyethylene water storage tank, ISI: 12701 of approved make 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. 2105.			
a	500 litres capacity	NOS	15.0	0.0236761416
b	1000 litres capacity	NOS	10.0	0.0315681888
c	2000 litres capacity	NOS	5.0	0.0315662597
d	5000 litres capacity	NOS	5.0	0.0789166137

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
2116	Providing and fixing electric operated hand dryer with photovoltaic control of reputed make, complete with all fittings and fixtures.	NOS.	10.0	0.0159028667
2117	Providing and fixing gyser of 25 litres capacity of reputed make with inlet and outlet connections, mounting plates, fixtures and fittings etc all complete.	NOS.	10	0.0406406594
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.			
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	20.0	0.0789860622

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A2201	Supply and fixing coloured glazed vitreous oval shape china wash basin 450x550mm conforming to IS: 2556 mounted over 18 mm thk granite beveled edge counter counter.The Basin shall be fitted with approved shape bib cock, photo-voltic control system for water control with flow rate less than 5 LPM (litres per minute) at 45 psi,CP brass chain with rubber plug, 40mm CP brass waste and bottle trap with necessary union including cutting of notch in granite counter slab etc complete as per specification	EACH	30.00	0.144230166
2202	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, 40mm CP brass waste and 40mm CP brass trap with necessaary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	10.0	0.0219920161
2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	5.0	0.0193973441

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
A2204	Providing and fixing wall mounted coloured glazed vitreous water closet with flushing valve system,water faucet ,Toilet paper holder, open front solid plastic seat and plastic cover,including necessary CP connection etc all complete.having flow rate of 6/3 LPF (litres per flush) or less and faucet having flow rate of 5 LPM (litres per minute) or less.	EACH	15.00	0.0475981655
A2205	Providing and fixing white/coloured glazed vitreous china 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 having flow rate of 6/3 LPF (litres per flush) or less at 45 psi.	EACH	20.0	0.0574270187
A2206	Providing and fixing white/coloured water efficient flat black glazed vitreous china urinals of size 440x265x355mm with photo voltaic control flushing system as per IS: 2556(pt-6 sec-1) with flush pipes, lead pipes, gratings, traps and necessary C.P fitting etc. all complete as per specification having flow rate of 2 LPF (litres per flush) or less at 45 psi.	EACH	10.0	0.0653784520
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.			
a	75mm dia pipes	RM	190.0	0.0264637261

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
b	110mm dia pipes	RM	190.0	0.0353338393
c	160mm dia pipes	RM	55.0	0.0158303934
d	200mm dia pipes	RM	400.0	0.1413662230
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	55.0	0.0172945987
b	300mm dia	RM	55.0	0.0298146149
c	450mm dia	RM	55.0	0.0495495557
d	600mm dia	RM	55.0	0.0675656468
e	900mm dia	RM	55.0	0.1186855096
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.			
a	150mm dia	RM	55.0	0.0115863201
c	300mm dia	RM	55.0	0.0187163632
d	450mm dia	RM	55.00	0.0277350189
2210	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:			
a	450mm dia	RM	55.0	0.0565734970
b	600mm dia	RM	55.0	0.0748017917
c	900mm dia	RM	55.0	0.1380172634
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	50.0	0.2093678519
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	35	0.145693249

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:			
a	100x100mm P or S Type.	EACH	45.0	0.0326755061
b	150x100mm P or S Type.	EACH	45.00	0.0338734922
c	150x150mm P or S Type.	EACH	45.0	0.0353319101
A2214	Providing and fixing SS floor traps size 100 mm Inlet and 100 mm Outlet all complete as per specification.	EACH	10.0	0.0066261945
2216	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete with minimum three year free maintenance and gurantee.	EACH	5.00	0.091317024
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete with minimum three year free maintenance and gurantee.	EACH	5.0	0.1570191370
2218	Providing and fixing white viterous urinal partitions of size 675x325x85mm all complete.	EACH	40.0	0.0396473610
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	10.0	0.0428612820

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.			
a	75mm dia pipes	RM	55.0	0.0326793643
b	100mm dia pipes	RM	55.00	0.0421860885
c	150mm dia pipes	RM	55.0	0.0606902480
d	200mm dia pipes	RM	55.0	0.0868761802
e	250mm dia pipes	RM	55.0	0.1247120936
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,conc rete to be paid seperately)			
a	75mm dia	RM	30.0	0.0203831265
b	100mm dia	RM	30.0	0.0273279737
c	150mm dia	RM	30.0	0.0404074360
d	200mm dia	RM	30.0	0.0592858456
A2221	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiffmixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :			
a	150mm dia pipes	RM	30.0	0.0049696478
b	200mm dia pipes	RM	30.00	0.006405321
2222	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.			
a	Upto 75 mm dia	RM	30.0	0.0033103772
b	100 mm dia	RM	30.0	0.0047803698

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ST No.	Item Description	Unit	Qty	Weightage in % (Nearest to 10 decimal point)
2223	Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 50 mm domestic water inlet pipe	NOS.	5.0	0.0159028667
2224	Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 150 mm sewer water outlet pipe	NOS.	5	0.0318057334

Instructions to the bidders

- Bidders shall quote Total Lump-sum Price for the entire scope of work \in Rupees in VOL II PRICE BID at BHEL E-procurement Portal.** Any other entry elsewhere in the offer of the bidder shall be treated as Null and Void. The total value including value of St No. A shall be automatically calculated on E-portal
- This **Quoted** Lump-sum Price shall be distributed based on the BHEL fixed percentage weightages w.r.t the total Total Lump-sum Price quoted by the bidder for the subject tender.
- BHEL has pre-fixed the Weightage/Factor as detailed above in this chapter for deriving the Unit Rates. By multiplying BHEL pre-fixed the Weightages / Factor and the total prices derived in sl no. 2 above; unit rate of individual items shall be derived. Unit Rate/Item Rate thus arrived shall be rounded off to two decimal places.
- Based on the quantities of individual item and the item rates arrived in Sl No 3 above, the total amount for individual items shall be derived. Total amount thus derived shall be rounded off to zero decimal places.
- Grand Total amount for the work shall be derived by BHEL by summing up respective total amounts**
- 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.3 above.**

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

For the convenience of bidders, BHEL has issued an excel sheet with all the requisite formulae as described above. ***However the referred excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.***