

E-TENDER SPECIFICATION

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|---------------------------------------|
| E- TENDER SPECIFICATION NUMBER |
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|--|
| BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822 |
|--|

FOR

PKG-A: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERECTION AT 2X250 MW NSPCL BHILAI FGD PROJECT

AND

PKG-B: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERECTION AT 2X250 MW NSPCL BHILAI FGD PROJECT.

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|---------------------------------|
| 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 Specifications & Drawings |
| Volume-II | Price Bid |



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

| CONTENTS | | |
|-----------|--|---|
| Volume No | Description | Hosted in website ww.bhel.com (Briefly) and detailed in BHEL e-Procurement Portal as files titled |
| NIL | Tender Specification Issue Details | (Part of <u>Vol-I-A-2822</u>) |
| NIL | Notice Inviting Tender | (Part of <u>Vol-I-A-2822</u>) |
| I-A | Technical Conditions of Contract | Vol-I-A-2822 |
| I-B | Special Conditions of Contract | (Part of Vol-I-BCD-2822) |
| I-C | General Conditions of Contract | (Part of Vol-I-BCD-2822) |
| I-D | Forms & Procedures | (Part of Vol-I-BCD-2822) |
| I-E | Technical Specifications & Drawings | Vol-I-E-2822 |
| II | Price Bid Specification as specified in E-Procurement Portal | Volume-II-PRICE-BID-2822 |

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| BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822 |
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FOR

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| PKG-A: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT |
|--|

AND

| |
|---|
| PKG-B: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT. |
|---|

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:

BHEL PSWR
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**NOTICE INVITING
TENDER**

Bharat Heavy Electricals Limited



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

BHEL PSWR
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Date: 15/07/2023

NOTICE INVITING TENDER (NIT)

NOTE: BIDDER MAY DOWNLOAD FROM WEB SITES

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) through E-Procurement Portal <https://eprocurebhel.co.in> only, 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 | TENDER NUMBER | BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822 |
| ii | Broad Scope of job | PKG-A: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT AND PKG-B: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT. |
| 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 Specification Applicable |
| F | Volume-II | Price Schedule (Absolute value). 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: 15/07/2023, Time :18:00 Hrs Closes: 25/07/2023, Time : 13:00 Hrs Brief information of the tenders shall also be available at central public procurement portal. (https://eprocure.gov.in/epublish/app) Applicable |

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Website: www.bhel.com

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| S No. | ISSUE | DESCRIPTION | |
|-------|---|---|----------------|
| v | DUE DATE & TIME OF OFFER SUBMISSION | <p>Date: 25/07/2023, Time :13:00 Hrs</p> <p>The bidder should submit their offer online only in e-Procurement portal at https://eprocurebhel.co.in</p> <p><u>Bidders are requested to upload their offer well in advance in order to avoid last minute congestion at this website.</u></p> <p>Hard copy bid or bids through E-mail / fax shall not be accepted.</p> | Applicable |
| vi | OPENING OF TENDER (Techno-Commercial Bid) | <p>Date: 25/07/2023, Time: 17:00 Hrs</p> <p>Notes:</p> <p>(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.</p> <p>(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.</p> | Applicable |
| vii | EMD AMOUNT | <p>₹19,80,000/- (Rs. Nineteen Lakhs Eighty Thousand Only)</p> <p>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.</p> | Applicable |
| viii | COST OF TENDER | NIL | Not Applicable |
| ix | LAST DATE FOR SEEKING CLARIFICATION | <p>One day before due date of offer submission.</p> <p>Along with soft version also, addressing to undersigned & to others as per contact address given below:</p> <p>1) Name: Deepak Kumar Designation: Manager Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Mobile-8004939836 Email :kumar_deepak@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</p> | Applicable |

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| S No. | ISSUE | DESCRIPTION | |
|-------|---|---|-----------------------|
| | | Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Email : rmalhotra@bhel.in | |
| x | SCHEDULE OF Pre Bid Discussion (PBD) | ----- | Not Applicable |
| xi | INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM) | 1) Shri Otem Dai, IAS (Retd.) 2) Shri Bishwamitra Pandey, IRAS (Retd.) 3) Shri Mukesh Mittal, IRS (Retd.) | Applicable |
| xii | Latest updates | 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), Central Public Procurement portal (https://eprocure.gov.in/epublish/app) & on e-tender portal https://eprocurebhel.co.in and not in the newspapers. Bidders to keep themselves updated with all such 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 | 5th 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.

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Website: www.bhel.com

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(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).

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.
- iii. 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
- iv. would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- v. 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.
- vi. 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:-

BHEL has finalized the e-procurement service Provider:-

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

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

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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

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

Please refer <http://www.mca.gov.in/> → MCA SERVICES → DSC SERVICES for DSC certifying authorities.

Vendors are also requested to go through bidder 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 | |
| | ENVELOPE I superscribed as: PART I (TECHNO COMMERCIAL BID) TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION: CONTAINING THE FOLLOWING:- | |
| 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. Note: 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 | |

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| | 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 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 | |
| | PRICE BID 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) | |

| | | |
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| | OUTER COVER | |
| | <u>ENVELOPE-IV</u> (MAIN ENVELOPE / OUTER ENVELOPE) superscribed as: TECHNO-COMMERCIAL BID, PRICE BID & EMD TENDER NO: NAME OF WORK: | |

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| | | |
|---|---|--|
| | PROJECT: DUE DATE OF SUBMISSION: CONTAINING THE FOLLOWING: | |
| i | <input type="checkbox"/> Envelopes I <input type="checkbox"/> Envelopes II <input type="checkbox"/> 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:

(**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))

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- 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

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

- 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

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

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- 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.
 - 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 <https://eprocurebhel.co.in>, 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

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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.) | iem2@bhel.in |
| 3. | Shri Mukesh Mittal, IRS (Retd.) | iem3@bhel.in |

(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) | Deepak Kumar/Manager (Purchase) |
| Dept: | Purchase Department | |
| Address: | Floor No. 5 & 6, Shreemohini Complex, 345 Kingsway, Nagpur-440001 | |
| Email: | rmalhotra@bhel.in | kumar_deepak@bhel.in |

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

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| | | |
|---------------|--------------|------------|
| Phone: | 0712-2858633 | 8004939836 |
|---------------|--------------|------------|

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:** "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.

20.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.

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~~

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- ~~..... 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).~~

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~~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 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.

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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 Owned) |
|----------------|-------------|-------------|---|
| — 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

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- 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 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.

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.....
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)
- 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:

- 1.0 Annexure-1: Pre Qualifying Requirements.
- 2.0 Annexure-2: Check List.
- 3.0 ~~Annexure-3: Certificate by Chartered Accountant~~
- 4.0 Annexure-4: Reverse Auction Process Compliance Form
- 5.0 Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process
- 6.0 Annexure-6: RA Price Confirmation and Breakup
- 7.0 Annexure-7: Integrity Pact
- 8.0 Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR
- 9.0 Annexure-9: Declaration reg. Related Firms & their areas of Activities
- 10.0 Annexure-10: Declaration regarding minimum local content
- 11.0 Annexure-11: Declaration regarding compliance to restrictions under rule 144 (xi) of GFR 2017
- 12.0 Annexure 12: Important information.

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ANNEXURE-1

PRE QUALIFYING CRITERIA

| | |
|---|---|
| E-Tender Spec No: BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822 | |
| JOB | PKG-A: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT AND PKG-B: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT. |

| S 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 | <u>B) Technical PQR</u> Bidder shall essentially meet all the Qualifying Requirements (i.e. B.1 & B.2) as under, in the last seven years as on latest date of bid submission: 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: B.1.1) Executed One work of value not less than ₹792 Lakhs against single work order. <div style="text-align: center;">OR</div> B.1.2) Executed Two works each of value not less than ₹495 Lakhs against maximum two work orders. <div style="text-align: center;">OR</div> B.1.3) Executed Three works each of value not less than ₹396 Lakhs against maximum three work orders. <div style="text-align: center;">And</div> B.2: Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least 7232 Cum within a common period of twelve consecutive months in cumulative of maximum two running/completed contracts. | Applicable | |

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| | | | |
|------------|--|-----------------------|---------|
| C-1 | Financial TURNOVER Bidders must have achieved an average annual financial turnover (audited) of ₹297 Lakhs or more over last three Financial Years (FY) i.e. '2019-20, 2020-21 & 2021-22'. | 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 Years as applicable in the last three Financial Years as furnished for 'C-1' above. | Applicable | |
| C-4 | Bidder must not be under Insolvency Resolution Process or Liquidation or Bankruptcy Code Proceedings (IBC) as on date, by NCLT or any adjudicating authority/authorities, 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 to execute the work as per sl no 9 of NIT (if applicable) Applicable, 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) | 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 | |

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

Explanatory Notes for PQR B.1 (Technical)

- The evaluation currency for this tender shall be INR.
- 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-

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

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).

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

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

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

Explanatory Notes for Technical Criteria (B2):

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 (Excluding Nuclear Projects) / "WORK EXECUTION of the value as defined in PQR" in case of industry & Nuclear Projects.
 - 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

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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.

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-
- i. Prime Bidder shall be responsible for the overall execution of the Contract.
 - 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 BHEL
 - m. 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 |

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Website: www.bhel.com

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| | | | |
|---------------|--|---------------------------------------|---------|
| 14 | Declaration confirming knowledge about Site Conditions | Applicable/ Not Applicable | YES/NO |
| 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:
Rs. Lac
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**:
Rs. Lac
3. ~~For Enterprises (having EM-II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum):~~ Investment in plant and machinery or equipment is Rs. Lac and turnover is Rs. Lac (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. Lac and turnover is Rs. Lac (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)

(Strike off whichever is not applicable)

~~The above investment of Rs. Lac is within permissible limit of
Rs. Lac 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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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/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822} 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

BHEL-PSWR, 345, KINGSWAY, NAGPUR-440001

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/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822} dt.{...}

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.

The price break-up is as given below.

Total

=====

- Rs. in value & in words

=====

Yours sincerely,

For _____

Name:

Company:

Date:

Seal:

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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 **E-Tender Spec No: BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822** (Job Description: PKG-A: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT AND PKG-B: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT).

(hereinafter referred to as "Contract"). 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 panel of Independent External Monitor(s) (IEMs), 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 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.

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- 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. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during 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 shall await their decision in the matter.

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

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tender process , terminate the contract, if already awarded, exclude from future business dealings and/ 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 (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above , the Bidder(s)/ Contractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee , whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.

Section 5 -Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) 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 or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 -Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity 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.

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Section 8 -Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.
- 8.2 The IEMs are 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 IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs 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 IEMs the option to participate in such meetings.
- 8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a 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 or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, 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 the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs 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 Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have 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 IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically

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raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.

- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word 'Monitor' would include both singular and plural.

Section 9 -Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact 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. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, 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

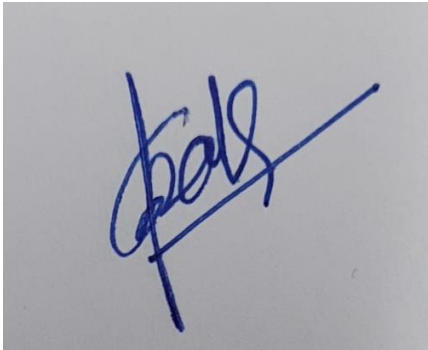
- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.
- 10.3 If the Bidder(s)/ Contractor(s) 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 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

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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.



DEEPAK KUMAR
MANAGER -PURCHASE
(BHEL-PSWR/ NAGPUR)

For & On behalf of the Principal

(Office Seal)

Place-----

Date-----

Witness:_____

(Name & Address) _____

For & On behalf of the Bidder/ Contractor

(Office Seal)

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, 345, KINGSWAY, NAGPUR-440001

Dear Sir/Madam,

Sub: DECLARATION REGARDING INSOLVENCY/ LIQUIDATION/ BANKRUPTCY PROCEEDINGS

Ref: NIT/Tender Specification No: BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822

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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ANNEXURE-9

DECLARATION

Date: _____

To,
GM-PURCHASE
BHEL-PSWR, 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, 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 Spec No: BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822,
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, 345, KINGSWAY, NAGPUR-440001

Dear Sir,

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

Ref : 1) NIT/Tender Spec No: BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822,
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 fulfill 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: kumar_deepak@bhel.in , Mob: 8004939836

DGM Purchase, Email: kamleshbhel@bhel.in, Ph: +91-712-3048-645

GM Purchase, Email: rmalhotra@bhel.in , Ph: +91-712- 2858-633

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. **"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 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".
3. **All Statutory Requirements as applicable for this project shall be complied with.**
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. **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

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

BHEL PSWR
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Security Deposit due shall be recovered as per terms defined in NIT/contract, from the bills along with due interest."

6. 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".

7. 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."

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:

- 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. Commencement Period for "Performance Guarantee for Workmanship" as per clause no 2.24 of Vol-IC GCC: This period shall commence after the completion of Contractual work as certified by Engineer-in-Charge.

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10. 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”.

11. 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.*

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12. **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.**

13. **Following clause of Volume-I-C-General Conditions of Contract clause shall not be applicable for this contract:**

- a. Overrun Compensation (Clause No. 2.12)
- b. Price variation Compensation (Clause no. 2.17)

14. **Clause for Existing Contractor:**

Existing Contractor** to whom the subject work for “**MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT**” has been awarded earlier by BHEL shall not be eligible to quote against this tender

**** Existing Contractor/Supplier will include:**

- 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.

15. **Modality for Award and Operation of Contract:**

I. Scope of work of subject tender has been divided in following 02 packages-

- 1. **PKG-A: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT**
- 2. **PKG-B: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT**

II. Bidder has to quote lumpsum price for Sum Total of PKG-A and PKG-B in “Part-C of Vol-II Price Bid”.

III. However, for ease in operation, both the packages shall be awarded separately and reckoned as separate contracts with separate contract value. Contract value for PKG-A & PKG-B shall be as per the BOQ/Rate Schedule provided in “Chapter-XI: Bill of Quantities and % Weightage of Individual Items” of Vol-1A-TCC.

IV. The contract period (06 months) and Start Date shall remain same for PKG-A and PKG-B.

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- V.** All the records under the subject contracts viz Measurement of work, progress monitoring, monthly review, performance evaluation etc shall be maintained for both the contracts separately.
- VI.** Accordingly, all applicable clauses of GCC for tender no: BHE/PW/PUR/BHFGD-MAIN-CIVIL-FGD/PKG-A & PKG-B/2822 shall be applicable separately for individual Contracts.

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TECHNICAL CONDITIONS OF CONTRACT (TCC)

**BHARAT HEAVY ELECTRICALS
LIMITED**



TECHNICAL CONDITIONS OF CONTRACT (TCC) CONTENTS

| Sl. No | DESCRIPTION | Chapter |
|------------------|---|--------------|
| Volume-IA | Part-I: Contract specific details | |
| 1 | Project Information | Chapter-I |
| 2 | Scope of Works and Technical Specifications | Chapter-II |
| 3 | Facilities in the scope of Contractor/BHEL (Scope Matrix) | Chapter-III |
| 4 | T&Ps and MMEs to be deployed by Contractor | Chapter-IV |
| 5 | T&Ps and MMEs to be deployed by BHEL on sharing basis | Chapter-V |
| 6 | Time Schedule | Chapter-VI |
| 7 | Terms of Payment | Chapter-VII |
| 8 | Taxes and other Duties | Chapter-VIII |
| 9 | SPECIFICATIONS AND DRAWINGS | Chapter-IX |
| 10 | APPENDIX | Chapter-X |
| 11 | FIELD QUALITY LAB EQUIPMENTS | Annexure 1 |
| 12 | Bill of Quantities and % Weightage of Individual Items | Chapter-XI |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-I: Project Information

| | |
|------------|--|
| 1.0 | Project Information: |
| 1.1 | <p><u>INTRODUCTION:</u></p> <p>The proposed site is located at Bhilai (East) in Durg district of Chhattisgarh.</p> <p>Latitudes : 21.21° N Longitudes : 81.38° E Place : Bhilai (East) District : Durg Nearest Railway Station : Bhilai (4KM) Nearest Airport : Raipur (35KM) Nearest Town/City : Bhilai (10KM)</p> |

Above information furnished are for general guidance of Contractor. However, Contractor has advised to visit the site and appraise himself about the conditions of site and infrastructure available in the area for fulfilling their commitments under the contract.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Work

2.0 **SCOPE OF WORK**

PKG-A: Balance Civil & Architectural works of Duct Foundations – 1 & 2, FGD Control Building, RC Pump & Oxidation Blower Shed - 2, Pipe Rack, Tanks, Wet Ball Mill Building & Machine, Gypsum Dewatering Building, Road & Drains, Paving, Other Misc. buildings/ Foundations etc.

PKG-B: Balance Civil & Architectural works of Lime Stone Storage Silo, Crusher House, Lime Conveyers, LTP-1, Truck Tippler, LHP & GHP Pump Houses, LHP MCC, Gypsum Shed, Cable Rack, DG Foundation, Day Silo, Paving, Roads & drains, Misc. buildings/foundations etc.

Note: Interchangeability of Scope:

BHEL reserves the right to swap any particular scope of work/any portion of work between PKG-A and PKG-B of subject tender as per the requirement of the site during execution of the job. In no case Scope of any vendor should be allowed to reduce less than 70% of total contract value of any package due to invoking of this clause by engineer in charge.

GENERAL SCOPE OF WORK

This tender specification is for Civil, & Architectural work including supply of raw materials, consumables, & bought out items, storage, handling/transportation of raw materials for construction activities at site for all facilities of 2x250MW NSPCL Bhilai FGD Project and handing over the facilities/structures to BHEL/employer for further equipment installation and commissioning as per the scope of the tender documents including structures of GHP & LHP System mentioned in Customer specification. The detailed scope of work and the technical requirements for the work to be executed under this specification shall be as per the approved drawings, technical specifications enclosed in Section-C and Section-D of the tender documents.

Any other building/facility/structure that would be required as per system design requirements but not covered in Section-A of the tender documents is also in the scope of the bidder.

Section-A, Section-B, Section-C and Section-D are enclosed as VOL-IE and form part of the tender/scope of work.

2.1 **CIVIL ARCHITECTURAL & STRUCTURAL WORKS**

This tender specification for civil, & architectural work covers construction of all the civil, architectural related to buildings, foundations, equipment foundations, etc., which includes earth work, foundation works, plain & reinforced cement concrete, reinforcement, scaffolding, form work, shoring & strutting, masonry work, floor finishes including dado & skirting, plastering, painting, roof finishes, doors, windows, fire proof doors, grouting, ventilators, rolling shutters, internal & external plumbing, earthing mat/grid with earth pits, water supply, water proofing, drainage & sewerage, fencing, gates, roads, MS embedment and foundation bolt / anchor bolts etc. including supply of all materials, consumables, labor, tools & plants, transportation and storage, quality control, sample testing etc. all complete as per specifications and approved drawings for proper and successful execution of the job of all required facilities of 2x250MW NSPCL Bhilai FGD Project.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Work

2.2 **ALSO INCLUDED IN THE SCOPE**

Unless otherwise specified, the work to be provided by the contractor for the items shall include but not be limited to the following:

1. Furnishing all labour, materials, supervision, construction plans, equipment, supplies, transport to & from the site, fuel, electricity, compressed air, water, transit and storage insurance and all other incidental items and temporary works not shown on specified but reasonably implied or necessary for the proper completion, maintenance and handing over the works, except in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provided by the engineer during the course of works.
2. Dismantling of existing pavements/facilities for construction of FGD works and restoration of the same as per requirement.
3. Enabling works for establishing of its own infrastructures including approach road to its storage open/close facilities etc. without any extra cost to BHEL.
4. The work shall be carried out both below and above ground level and shall include basements, equipment foundations, grouting, slabs, beams, columns, footings, rafts, walls, brick walls, stairs, trenches, pits, access roads, culverts, buildings, finishes, complete architectural aspects, drainage, sanitation, water supply etc.
5. Access roads to all buildings/facilities including construction and maintenance of temporary access roads for approach to the building/facilities for construction/erection activities.
6. 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.
7. Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the engineer.
8. 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.
9. Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
10. Carrying out required survey 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 identifications works etc as required. The contractor shall provide the owner / BHEL such an 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.
11. Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract. Quality of work to customer's satisfaction and system requirements is the essence of these certifications. The contractor in all respects will organize his work, systems, environment, process control documentation, tools, plant, inspection, measuring and testing equipments etc. as per instructions of BHEL engineer. The contractor shall also comply with applicable legislation and regulations with regard to health, safety and environmental aspects for minimizing risk arising from occupational health, safety hazards, controlling pollution and wastages.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Work

12. The customer M/s NSPCL and / or their consultant may depute their representative for checking and supervision of important stages of work. The contractor shall be required to provide all facilities for inspection of works at no extra cost to BHEL. Any defect in quality of work or deviations from drawings / specifications pointed out during such inspection shall be made good by the contractor in the same way as if pointed out by the BHEL Engineer, without any cost implications to BHEL.
13. The scope of work also includes attending meetings at BHEL office at site / BHEL Nagpur office, BHEL engineering centers/Units, Owner's place in Site or at places decided by Owner as and when necessary for review, discussions, coordination, etc.
14. Contractor shall set up suitable storage facilities for Cement, sand, deck plate, bolts, aggregate, reinforcement steel, structural steel, handrail, grating, foundation bolts, shuttering item, inserts, water proofing material, admixture other BOI's etc and all are stored properly as per IS recommendation/technical specifications/manufacturer recommendation. Wastage due to lapse of storing will be because of contractor.
15. All item to be supplied as per customer/ NSPCL specification with prior approval from NTPC/NSPCL/BHEL.
16. Contractor shall maintain proper records of test reports, bar bending schedule and to be produced to concerned Engineer whenever required.
17. Contractor shall be responsible for coordinating with the erection agency as well as BHEL for maintaining proper line, elevation, coordinate as per drawing. Any mismatches/ fouling with existing structure to be highlighted to BHEL. Dismantling of structure due to lack of coordination/Survey will be on contractor's account.
18. Preparation and obtaining approval from BHEL/NTPC/NSPCL for construction methodologies/ procedures.
19. 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.
20. 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.
21. Taking delivery of materials (BHEL Scope) from BHEL stores/ storage yards for utilization in construction work under this package.
22. Fabrication and fixing of templates/frames, inserts, fixing of anchor bolts, sleeves, and embedments etc. in concrete.
23. Supply of all instruments and personnel for conducting necessary tests at site as specified/as directed by the Engineer.
24. 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.
25. 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.
26. 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.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Work

27. 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:

- a. Labour rest sheds near work spot.
- b. Canteen facility creation.
- c. Drinking water facility.
- d. Labour toilets near work spot in sufficient nos. with regular cleaning & maintenance arrangement
- e. 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 NTPC/NSPCL.

28. Setting Up of Laboratory Works: The contractor shall set up his own laboratory in the very close vicinity of the work site as per indicative field QA&QC laboratory set up (enclosed with this tender document as Annexure 1) and as the directions of engineer-in-charge. The laboratory shall be equipped with latest testing equipment in sufficient number to carry out all the tests as required under a contract. The contractor should ensure that the equipment is available well in advance of starting of the work to avoid stoppage of work on this account. All the tests shall be carried out by the contractor in the presence of the Engineer's representative and a joint record of all observations and results thereof shall be maintained, and available with the Engineer. **Bidder can tie up with approved third party Lab for testing.**

29. 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, 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.

30. Implementation of Site Data Digitalization (SDD) for raising of invoices, uploading of Form-14 and Integrated Project Management System (IPMS).

2.3 WORKS BY OTHER Agencies

- 1) RMC (Ready mix Concrete) Supply as specifically mentioned in Item Rate Description. BHEL will supply free RMC (Ready mix Concrete) in those item only where it is mentioned free in item description.
- 2) Supply of Shop fabrication and erection of structure.
- 3) M.S Cladding & Deck sheet Supply and fixing.
- 4) Chimney Civil work.

2.4 SITE VISIT

The tenderer is advised to physically visit the site and fully acquaint themselves with site conditions, transportation routes, various distances and the fact that other contractors would be working in this area their structures are to be protected. The material brought and stacked for construction should not make hindrance to other contractors. Necessary precaution and arrangements including sprinkling of

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Work

water during work as acceptable to BHEL for safety & security for the above have to be made by the contractor. No claim will be entertained by BHEL on ground of lack of knowledge and the contractor's rates shall be deemed to have taken this into account. The contractor, in the event of this work awarded to him, shall establish an office at site and keep posted an authorized, responsible officer with valid Power of Attorney for the purpose of the contract. Any order or instructions of the engineer or his duly authorized representative, communicated to the contractor's representative at site office will be deemed to have been communicated to the contractor at his legal address.

2.5 **HANDLING OF MATERIALS ISSUED BY BHEL:**

- 2.5.1 Materials shall be issued by BHEL based on the weight 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.
- 2.5.2 All materials 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 stores/storage yard etc. Shall be arranged by contractor within quoted/accepted rates.
- 2.5.3 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 replenished by the contractor without any cost & time implication to BHEL.
- 2.5.4 In case of theft/damaged of BHEL issued material, contractor shall arrange the material without any cost & time implication.

2.6 **ISSUE OF STEEL:**

- 2.6.1 The steel shall be issued to the contractor on the following basis:
- i. Structural Steel: Weight basis (Unit – MT)
 - ii. Reinforcement Steel and Earthing Rod, foundation bolts: Weight basis (Unit-MT)
 - iii. GI Gratings: Weight Basis(Unit- MT/As Received from manufacturer)

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iv. MS Rails: Weighment Basis (Unit-MT)

- 2.6.2 All the steel (structural, reinforcement, earthing rod/GI flats, GI gratings, foundation bolts, MS Rails) 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.

| In | 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. |

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

- 2.6.3 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.
- 2.6.4 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.
- 2.6.5 The contractor shall submit to BHEL, a statement indicating estimated quantity of **cement and steel** required during a quarter. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.
- 2.6.6 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, GI grating, Foundation bolts, | Consumable in ONE MONTH |
| 02. | Cement | ONE MONTH |

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- 2.6.7 Bidders shall ensure that no lamination material is taken over by them from BHEL.
- 2.6.8 The contractor must note that cement and steel required for the contractor's enabling job like store/ site office/batching plant/temporary works etc. shall be arranged by the contractor at his own cost.

2.7 RETURN OF MATERIALS

- 2.7.1 ~~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.~~
- 2.7.2 **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 be entitled to any transportation and incidental charge. Scrap for reinforcement steel and structural steel shall be returned separately.
- 2.7.3 **Return of Ready Mix Concrete: Under no circumstances Ready Mix Concrete will be taken back. Bidder have to plan accordingly for proper use of Ready Mix Concrete.**

2.8 Scrap and Serviceable Materials:

- 2.8.1 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.
- 2.8.2 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**.
- 2.8.3 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.
- 2.8.4 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.

2.9 Cement, Steel Consumption and wastage for BHEL issued material:

- 2.9.1 **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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

2.9.1.1 Actual consumption = Issue – Surplus.

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

2.9.1.3 Wastage = Actual consumption – Theoretical consumption.

2.9.2 Reinforcement Steel, MS earthing rod, GI gratings, Foundation bolts and MS Rails Wastage

2.9.2.1 **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 |
| R-3 | Wastage beyond THREE percent (+3%) of the theoretical consumption above (R-1). | Penal rate |

2.9.3 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.

2.9.3.1 Actual consumption = Issue – Surplus.

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

2.9.3.3 Wastage = Actual consumption – Theoretical consumption.

2.9.4 Structural Steel Wastage

2.9.4.1 **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.

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| 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 |

2.9.5 Ready Mix Concrete Consumption: - The theoretical consumption of various grade of based on approved construction drawing. Quantity shall be calculated considering the volume of concrete as per approved drawing. No extra cost shall be payable to you for any deviation in quantity of Ready Mix Concrete received from the Batching Plant and actual use at site.

2.9.5.1 Ready Mix Concrete Wastage Allowable wastage: +1.5% of the theoretical consumption shall be considered as allowable wastage.

2.10 Reconciliation of Materials:

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

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

2.10.3 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.

2.10.4 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.

2.11 Recovery of Materials (Penal Rates) against BHEL issued material:

If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates:

| Sl. No. | Items | Penal Rates (Rs.) |
|---------|--|-------------------|
| P-1 | Reinforcement steel and MS earthing rod/GI flat | 65,000 per MT |
| P-2 | MS Flats, beams, channel, angels etc. (Rolled Sections) | 65,000 per MT |
| P-3 | Foundation bolts, inserts/embedment, if supplied by BHEL | 90,000 per MT |
| P-4 | Ready Mix Concrete M-7.5 | 3453 per Cum |

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| | | |
|------|-------------------------|--------------|
| P-5 | Ready Mix Concrete M-10 | 3717 per Cum |
| P-6 | Ready Mix Concrete M-15 | 4243 per Cum |
| P-7 | Ready Mix Concrete M-20 | 4424 per Cum |
| P-8 | Ready Mix Concrete M-25 | 4991 per Cum |
| P-9 | Ready Mix Concrete M-30 | 5163 per Cum |
| P-10 | Ready Mix Concrete M-35 | 5324 per Cum |

2.12 PROCUREMENT AND TESTING OF MATERIAL BY THE CONTRACTOR:

Material required for the entire job like cement, windows, doors, ventilators, rolling shutter, sanitary fixtures, painting & finishing material, electrical fittings and wiring material and all other material required for the completion of entire scope have to be arranged by the contractor as per technical specification from approved source/supplier of NTPC/NSPCL. BHEL reserves the right to reject any material not found satisfactory. Rates 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/NTPC/ NSPCL** representative.

2.13 RECORD FOR MATERIALS CONSUMED:

The contractor shall maintain and furnish to the engineer the record of materials consumed in the works for each activity. The statement showing the theoretical vis-a-vis actual consumption of specified materials, such as cement, reinforcement steel, structural steel, grouting compound, paint etc. shall be enclosed along with the running bills submitted by the contractor. Contractor has to also furnish the test results of the materials used in the work as per IS specifications.

2.14 SITE DRAINAGE

All water including sub-soil water which may accumulate on the site during the progress of the works, including monsoon period shall be removed by the contractor from the site to the satisfaction of the engineer. All such expenditure on de-watering shall be deemed to be included in quoted rates.

2.15 INSPECTION AND STAGE APPROVAL OF THE WORK:

The owner or his duly authorised representative shall have at all reasonable times access to the contractor's premises or works and shall have the power to inspect drawings or any portion of the work, examine the materials and workmanship and shall have the authority to reject any work. This would be implemented through joint inspection by the representative of the owner and BHEL / third party appointed by BHEL and in the form of joint protocols without any extra claims and loss of time and amount. All work embracing more than one process shall be subject to examination and approval at each stage thereof and the contractor shall give due notice in writing to the engineer when each stage is ready. In default of such notice being received, the engineer shall be entitled to approve the quality and extent thereof at any time he may choose and in the event of any dispute, the decision of the engineer thereon shall be final and conclusive.

2.16 UNCOVERING AND MAKING GOOD:

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The contractor shall uncover any part of the works and/or make openings in or through the same as the engineer may from time to time direct for his verification and shall reinstate and make good such part to the satisfaction of the engineer. If any such part has been covered up or put out of view after being approved by the engineer and is subsequently found on uncovering to be executed in accordance with the contract, the expenses of uncovering and / or making opening in or through reinstating and making good the same shall be borne by BHEL. In any other case all such expenses shall be borne by the contractor.

2.17 GATE PASS:

- THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS OF GATE PASS FOR HIS VEHICLE, T&P ETC. AS PRESCRIBED AND INSTRUCTED BY THE NSPCL /CISF AT HIS OWN COST, EACH GATE PASS HAS TO BE ENDORSED BY THE NSPCL / CISF BEFORE THE PASS BE USED. IN CASE OF TERMINATION OF THE SERVICE OF ANY OF T&P OR VEHICLE DURING THE CONTRACTUAL PERIOD, THE CONTRACTOR SHALL HAVE TO SURRENDER THE GATE PASS TO THE NSPCL/CISF AT THE END OF THE PROJECT ALL THE GATE PASSES ENDORSED BY THE NSPCL/ CISF FOR USE OF THE CONTRACTOR'S VEHICLE, T&P SHALL HAVE TO BE RETURNED.
- VALID RC BOOK, INSURANCE, FITNESS CERTIFICATE, ROAD TAX CERTIFICATE, PUC, DRIVING LICENSE, ETC. IS REQUIRED FOR GATE PASS FORMALITIES OF ALL VEHICLES. GOODS CARRYING CERTIFICATE IS ALSO REQUIRED FOR GOODS CATEGORY VEHICLES. GATE PASS FORMALITIES MAY TAKE TIME, SO CONTRACTOR HAS TO PLAN WELL IN ADVANCE ACCORDINGLY.
- THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS OF GATE PASS FOR HIS EMPLOYEES / WORKERS AS PRESCRIBED AND INSTRUCTED BY THE NSPCL /CISF AT HIS OWN COST, EACH GATE PASS HAS TO BE ENDORSED BY THE NSPCL / CISF BEFORE THE PASS BE USED. IN CASE OF TERMINATION OF THE SERVICE OF ANY OF HIS EMPLOYEE DURING THE CONTRACTUAL PERIOD, THE CONTRACTOR SHALL HAVE TO SURRENDER THE GATE PASS ISSUED TO THE EMPLOYEES TO THE NSPCL / CISF. AT THE END OF THE PROJECT ALL THE GATE PASSES ENDORSED BY THE NSPCL / CISF FOR USE OF THE CONTRACTOR'S EMPLOYEES SHALL HAVE TO BE RETURNED.
- POLICE VERIFICATION AND MEDICAL FITNESS CERTIFICATE OF ALL WORKERS / EMPLOYEES OF AGENCIES IS MUST FOR GATE PASS FORMALITIES. CONTRACTOR HAS TO ARRANGE THE SAME AT HIS OWN COST. GATE PASS FORMALITIES MAY TAKE TIME, SO CONTRACTOR HAS TO PLAN WELL IN ADVANCE ACCORDINGLY.

2.18 SAFETY

- BIDDER MUST VISIT SITE AND GET ACQUAINTED HIMSELF WITH WORKING CONDITION, SAFETY & OTHER FORMALITIES / PROCEDURE PREVAILING IN ONGC PREMISES. NO CLAIM SHALL BE ENTERTAINED ON ACCOUNT OF THIS.
- PPES IS MUST FOR ALL WORKERS AND STAFFS AT THE TIME OF INDUCTION ITSELF. CONTRACTOR HAS TO ARRANGE ALL THESE FOR THEIR WORKER AND STAFFS AT THEIR OWN COST.
- BIDDER TO NOTE THAT IN ADDITION TO BHEL REQUIREMENTS OF SAFETY, OCCUPATIONAL HEALTH AND ENVIRONMENTAL MANAGEMENT, CONTRACTOR SHALL STRICTLY FOLLOW & ABIDE THE SAFETY LAWS/RULES & REGULATION REQUIREMENTS OF NSPCL/NTPC AT SITE AND IN THE EVENT OF ANY DEVIATION/ DISPUTE, THE REQUIREMENTS OF NSPCL/NTPC IN THIS

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REGARD SHALL SUPERSEDE THE BHEL REQUIREMENTS. CONTRACTOR SHALL ARRANGE THE REQUIRED SAFETY FACILITIES AS MENTIONED IN THE BHEL HSE AND NSPCL/NTPC SPECIFICATION DOCUMENT.

- FOR NON-COMPLIANCES/VIOLATION OF SAFETY RULES AND FINE/PENALTY IMPOSED BY NSPCL AS THEIR RULES & REGULATIONS SHALL BE TO THE ACCOUNT OF CONTRACTOR & SAME SHALL BE PAID BY CONTRACTOR. IN EVEN OF ANY RECOVERY FROM BHEL BILLS BY CUSTOMER ON ACCOUNT OF CONTRACTOR AGAINST SUCH FINE/PENALTY, BHEL SHALL RECOVER SUCH AMOUNT/PAYMENT IN ADDITION TO DEPARTMENTAL OVERHEADS FROM ANY AVAILABLE BILLS/PAYMENTS OF CONTRACTOR WHICH IS DUE FOR PAYMENT FROM BHEL.

2.19 EXECUTION OF WORK

The work shall be executed in a workman like manner and to the entire satisfaction of the engineer and as per technical specification issued with tender, IS codes, CPWD specifications as applicable. In case of conflict, the decision of the engineer shall be final and binding. The engineer will communicate or confirm his instructions to the contractor in respect of the execution of the work in a "Work Site Order Book" maintained at his office and the contractor shall visit this office daily and shall confirm receipt of such instructions by signing the relevant entries in this book. Such entries will rank as order or notices in writing within the intent and meaning of these conditions. Only BHEL approved make of electrodes will be used. All electrodes shall be heated and dried in the electric electrode drying oven to the required temperature for the period specified by the engineer before these are used in erection work. All welders shall have electrodes drying portable oven at the work spot. The electrodes brought to site will have valid manufacturing test certificates. The test certificate will have co-relation with the lot no. / batch no. given on electrode packets. No electrodes will be allowed to be used in the absence of above requirement. The thermostat and thermometer of electrode drying over will be also calibrated and test certificate from Govt. approved/accredited test house traceable to National / International standards will be submitted to BHEL before putting the over in use. Periodical calibration for the same shall also be arranged by the contractor within the finally accepted rates.

2.20 PROTECTION OF WORK

The contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or required by the engineer for the protection of the works or for the safety and convenience of those employed on the works or the public. The contractor shall have total responsibility for protecting his works till it is finally taken over by the engineer. No claim will be entertained by the engineer for any damage or loss to the contractor's works and the contractor shall be responsible for the complete restoration of the damaged works to its original condition to comply with the specifications and drawings. Should any such damage to the contractor's works occur because of other party not under his supervision or control, the contractor shall make his claim directly with the party concerned. The contractor shall not cause any delay in the repair of such damaged works because of any delay in the resolution of such disputes. The contractor shall proceed to repair the work immediately and no cause thereof will be assigned pending resolution of such disputes.

2.21 PROTECTION OF EMBEDMENTS, BOLTS ETC

The contractor shall ensure proper protection to the satisfaction of the engineer, of all bolts, inserts, embedment etc. from weather etc. by greasing, rapping them with gunny bags or canvas or by any other means as directed by engineer. Cost of such protections shall be deemed to be included in the rates quoted for the item. Contractor has to clear the site/area where mechanical and electrical erection work is to be commenced or in progress. The contractor shall remove construction materials and equipment

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Work

lying in the vicinity and causing obstruction in the erection work within 24 hrs. notice. In case, he fails to clear the site, this will be done at his risk and cost by BHEL.

2.22 COMPLETION OF WORK

The works shall be completed to the entire satisfaction of the engineer and in accordance with the completion schedule as specified in the contract and all unused stores and materials, tools, plant, equipment, temporary buildings, site office, labour hutments and other things shall be removed and the site and work cleared of rubbish and all waste materials and delivered up clean and tidy to the satisfaction of the engineer at the contractor's expenses. BHEL shall have power to take over from the contractor from time to time such sections of the work as have been completed to the satisfaction of the engineer. Such work however shall not be treated as have been completed until the extra works are executed to the satisfaction of engineer. The guarantee period shall commence only after handing over of the entire works. The BHEL engineer shall certify to the contractor the date on which the work is completed.

2.23 HIERARCHY

In case of any conflict/deviations amongst various documents, the order of precedence shall be as follows

- 1) Statutory Regulations
- 2) NTPC Technical specification/Section C Technical specifications.
- 3) Scope of works as per Section A of the bid documents.
- 4) IS standards
- 5) BHEL's standard specification (Section D).

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

Bidders are requested to specifically note the following:

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

| | |
|--|---|
| Sh. Chandan Behera Dy. Manager (Civil) BHEL Site Office: 2x2500 MW NSPCL Bhilai Mob No.: 9425293179 | Sh. KK Mishra, Engineer (PMX) PSWR Nagpur Mob No: 9561130762 |
|--|---|

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Chapter – III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

| Sl. No. | Description | Scope | | Remarks |
|---------|---|-------|--------|---|
| | | BHEL | Bidder | |
| | PART I | | | |
| 3.1 | <i>Establishment</i> | | | |
| 3.1.1 | <i>For Construction Purpose:</i> | | | |
| A | Open space for office (as per availability, if provided it will be free of cost) | Yes | | Location will be finalized after joint survey with owner |
| B | Open space for storage (as per availability, if provided it will be free of cost) | Yes | | Location will be finalized after joint survey with owner |
| C | Construction of bidder's office, canteen and open /closed storage facilities 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 | Fire fighting equipments like buckets, extinguishers etc | | Yes | |
| G | Fencing of storage area, office, canteen etc of the bidder | | Yes | |
| 3.1.2 | <i>For living purpose of the bidder</i> | | | |
| A | Open space for labour colony (as per availability) | | Yes | Contractor has to make his own arrangements for shelter and transportation of labours as per requirement. |
| B | Labour Colony with internal roads, sanitation, complying with statutory requirements | | Yes | |
| 3.2.0 | <i>ELECTRICITY</i> | | | |
| 3.2.1 | <i>Electricity for construction purposes 3 Phase 415/440 V</i> | | | CHARGEABLE |
| A | Single point source | Yes | | CHARGEABLE. At two locations. Further distribution and Metering is in scope of bidder. |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

| Sl. No. | Description | Scope | | Remarks |
|---------|--|-------|--------|---|
| | | BHEL | Bidder | |
| | PART I | | | |
| 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 | <i>Electricity for office, stores, canteen etc of the bidder.</i> | | | |
| A | Single point source | yes | | Chargeable. Contractor Has to make his own arrangements from point source |
| 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 | <i>Electricity for living accommodation of the bidder's staff, engineers, supervisors etc</i> | | | Contractor Has to make his own arrangements |
| 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 | |
| 3.3.0 | <i>WATER SUPPLY</i> | | | |
| 3.3.1 | <i>For construction purposes: (to be specified whether chargeable or free)</i> | | | |
| A | Making the water available at single point | | yes | Contractor has to make his own arrangement. |
| B | Further distribution as per the requirement of work including supply of materials and execution | | Yes | |
| 3.3.2 | <i>Water supply for bidder's office, stores, canteen etc.</i> | | | |
| 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 (Scope Matrix)

| Sl. No. | Description PART I | Scope | | Remarks |
|---------|---|-------|--------|---|
| | | BHEL | Bidder | |
| 3.3.3 | Water supply for Living Purpose | | | 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 | |
| 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 | |

1. CONSTRUCTION POWER:

Construction power (three phase, 415 V/ 440 V) will be provided near the site at a distance of approx. 500M on chargeable basis (source of construction power shall be provided at two locations). Further distribution shall be arranged by the contractor at his own cost and services. Contractor shall be responsible for fulfillment of all requirements including statutory requirements

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

in this regard. Contractor shall deploy and install required energy meter, cables, fuses, LT distribution boards, switchboards, bus bars, earthing arrangements, protection devices i.e, required capacity ELCB/RCCB in outgoing feeders and any other installation as specified by statutory authority/act. 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 equipments 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.

1. 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. 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.
3. 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.
4. 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.
5. 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.
6. Contractor is advised to maintain the calibrated energy measuring instruments and use their system as efficiently as possible to maintain the HT side input energy meter reading and LT side outgoing energy meter reading to sub-contractors as equal. In case there is any difference between the sum of the LT side meter readings of all sub-contractors and the HT side meter reading of M/s NSPCL, same shall be distributed proportionately among all sub-contractors working during the respective calendar month.
7. The bidder will have to Procure & install General mobile illumination system during construction right from start of his work. This system will include temporary pole lighting, portable lighting towers with DG back-up, within the quoted price. The illumination should be such that minimum illumination requirement as specified by Indian standards for general illumination is maintained.
8. The charges only for the actual energy consumed by the contractor shall be recovered based on prevalent rate of DISCOM.

GENERAL: - If any other voltage level (other than normally available) is required, the same shall be arranged by the contractor from power supply as above. Contractor will have to provide at his own cost necessary calibrated energy meters (tamper proof, suitably housed in a weather proof box with lock & key arrangement) at point of power supply along with calibration certificate from authorized / accredited agency for working out the power consumption. In case of recalibration

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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.

2. CONSTRUCTION WATER:

Contractor shall make all arrangements himself for the supply of construction water as well as potable water for labour and other personnel at the work site/ colony. Any statutory clearance required shall be obtained by the contractor. Assistance, if required shall be provided by BHEL/NSPCL.

3. LAND

BHEL shall allot land to the contractor if customer NSPCL allots the same to BHEL for his office & stores. Contractor must maintain the areas allotted to him in a neat and clean condition as required by the Employer. The contractor shall provide adequate storage, testing and office facilities with approval from the engineer. The rate quoted by the contractor shall be deemed to include for these and no separate payment will be made towards these. On completion of work, the site shall be cleaned by the contractor of all materials, temporary sheds, debris, rubbish plants and equipments, belonging to the contractor at no extra cost. The site and surroundings shall be handed over in neat and clean conditions. Contractor shall do periodical housekeeping as per the instructions of BHEL and NSPCL at no extra cost. In case of any failure by the contractor, the employer will get set at risk and cost of the contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

4.1 Tools & Plants:

Nos of T&Ps to be deployed at site shall be decided w.r.t. monthly plan and review based on site requirement. Below given Nos are suggestive/tentative for planning purposes by the bidder.

| A | For Civil works | |
|---------------|--|---|
| Sl No. | Description of T&P | Quantity |
| 1. | SLUDGE / SLURRY PUMP (DIESEL / ELEC) | As per requirement. |
| 2. | Electrical Winch (of required capacity) | As per requirement |
| 3. | Vibrators(electrical/diesel) | 06 Nos |
| 4. | Air Compressor/Air blower | 01 No. |
| 5. | Concrete breaker (HILTI/STANLEY or equivalent) | 01 No. |
| 6. | Welding Machine | As per requirement |
| 7. | Self-priming Dewatering pump of various capacity (Diesel) From 2 HP, 7.5 HP | 02 Nos. Each |
| 8. | Curing / dewatering pump – 1.5 / 2 HP | As per requirement |
| 9. | Hydraulic Excavator /Proclain | 01 Nos |
| 10. | JCB | 01 Nos |
| 11. | <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) |
| 12. | Mobile crane/ Farana (12/14/18 MT Capacity) | 01Nos |
| 13. | Trailer (20MT Capacity) | 01 No |
| 14. | Tractor mounted grader/ loader | As per requirement. |
| 15. | Pipe Scaffolding, Clamps / Swivel Couplers (One/Two Way), Props, Jacks, Screw Heads, MS Pipes, Wooden Battens, Planks, Bullies, H Frames, Tie Rods with Nuts, Adjustable Achro Span (Considering Individual Areas) | As per requirement. |
| 16. | Dumper | 02 Nos |
| 17. | Reinforcement bending machine | 02 Nos |
| 18. | Reinforcement cutting machine | 02 Nos |
| 19. | MS scaffolding pipe with matching Couplers | As per requirement |
| 20. | Plate compactor | As per requirement |
| 21. | Earth Compactor | As per requirement |
| 22. | Vacuum Dewatering machine | As per requirement |
| 23. | Total Station | 01 No |
| 24. | Auto level & staff | 02 Nos |
| 25. | Vibro roller of suitable capacity | To be mobilized as per site requirement |

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Chapter – IV: T&Ps and MMEs to be deployed by Contractor

| | | |
|-----|---|--------------------|
| 26. | Water Tanker | 01 Nos |
| 27. | All equipments for area Lightning like Halogen bulbs and Portable light Towers etc. | As per requirement |
| 28. | DG Set 125 KVA | As per requirement |
| 29. | COMPUTER with printing/photocopy & CD writing facility | As per requirement |

FIELD QUALITY LAB EQUIPMENTS AS PER LIST ENCLOSED as Annexure-II WITH THIS TENDER DOCUMENTS AS APPLICABLE FOR THE SCOPE OF WORK OF THIS TENDER

4.2 MEASURING AND MONITORING DEVICES (MMD):

AS PER REQUIREMENT TO BE FINALIZED AT SITE.

4.3 COMPUTER INFRASTRUCTURE

The successful bidder(s) will have to establish computerized project management system along with one no supervisor with sufficient computer knowledge (knowledge of MS office) and the following are the minimum requirements of the system:

- 4.1.1** The bidder will have to install 1 nos PC (multimedia PC work station Pentium-Duo,1 GHZ or above, 320 GB HDD, 2 GB RAM, 100 MBPS LAN card of HCL/ COMPAQ/ ZENITH or equivalent make with window 8 O/S with required accessories like mouse, keyboard, UPS and required software like MS Office 2010 Professional, AutoCAD 2011, ADOBE PDF CREATOR (ver 8.0) with one number laser jet printer compatible for A4 and A3 size printing (ink/ cartridge 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.
- 4.1.2** These computers / printer along with technical supervisor (One number) 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. **The computer/printer along with One nos technical supervisor shall remain/work at BHEL offices.**
- 4.1.3** 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 pertaining to the contractor's scope of work etc.

- 3.16.1** This facility has to be provided **with in one month from date of start of work**, 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. / If Contractor fails to mobilize above computer infrastructure BHEL reserve the right to recover from Bidder at the rate of Rs 15000 per Month per Unit.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

- 4.1.4** In the event of the contract period getting extended beyond the stipulated time for reasons not attributable to the bidder, the bidder will be reimbursed at Rs 8000.00 per month for one computer with printer facility, if the services of computer and printer are being used by BHEL.

NOTE:

- 1. All above T&Ps are to be deployed by contractor as and when required as per instruction of BHEL engineer. If works gets delayed due to non-availability of above T&Ps, BHEL reserves the right to deploy the same and recover the charges thereof from the contractor as per prevailing market rate/hiring rate/BHEL internal hiring rates, as the case may be, + Applicable overhead rates.**
- This above list is only indicative and neither exhaustive nor limiting. Quantities indicated above are only tentative. Contractor shall deploy all necessary T&P to meet the schedules & as prescribed by BHEL engineer and required for completion of work. In the event of non-mobilisation of any T&P by the successful bidder and as a result progress of work suffered, BHEL reserves the right to deduct suitable amount from the dues of the bidder, with assigning reasons thereof.
- 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.
- All distribution boards, connecting cables/welding cables, wire ropes, hoses etc., including temporary air/water/electrical connectors etc. shall have to be arranged by the contractor at his own cost.
- The contractor shall engage trained and experienced operators for the operation of T&P's and machinery. BHEL engineer will check their skill and performance before they are allowed to operate the same. However, checking of skills by BHEL does not absolve the contractor of his responsibilities for proper and safe handling of equipment, consistent good performance of operators and regular performance evaluation of operators.
- The day to day and routine maintenance of T&Ps and machinery should be carried out by contractor and these shall be maintained in good working condition during the entire period of use T&Ps in defective/damaged condition shall be rectified promptly to the full satisfaction of BHEL engineer. Contractor shall maintain records for maintenance of major T&Ps which shall be made available for inspection whenever required. In case of any lapses on the part of the contractor, BHEL at its own discretion get the servicing/repair of equipment done at the risk and cost of the contractor with BHEL overheads as applicable time to time.
- The contractor shall arrange all spares needed for upkeep of all T&Ps and machinery. For cranes, contractor shall arrange spares for repair/replacement of filter, batteries, self, dynamo, gaskets, hoses, oil seals and rubber parts.
- The contractor shall permanently deploy with them minimum number of mechanics and skilled workers for undertaking the regular maintenance of tools and plants and machinery and for increasing / shortening of the crane boom as required. The contractor shall also arrange required tools, supports, consumables, illumination etc. for the above purpose.

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9. The contractor shall arrange for consolidation of ground and arrangement of sleepers/sand bag filling etc. for safe operation / movement of equipment including cranes/trailers etc. at his cost.
10. In the event of BHEL arranging T&P's and Machineries at the cost and risk of contractor, any loss / damage to any part of T&Ps and machineries provided by BHEL shall be to the contractor's account and any expenditure on these accounts by BHEL will be recovered from the contractor's bill in case the contractor fails to make good the loss.
11. Contractor shall ensure deployment of serviced and healthy T&Ps including cranes, lifting tackles, wire ropes, manila ropes, winches and slings etc. History card and maintenance records for major T&Ps will be maintained by the contractor and will be made available to BHEL engineer for inspection as and when required. Identification for such T&Ps will be done as per BHEL Engineer's advice.
12. Contractor shall ensure deployment of reliable and calibrated IMTEs (Inspection Measuring and Test Equipment). The IMTEs shall have test/calibration certificates from authorized / Govt. approved / accredited agencies traceable to National/ International standards. Each IMTE shall have a label indicating calibration status Le., date of calibration, calibration agency and due date for calibration. A list of such instruments deployed by contractor at site with its calibration status is to be submitted to BHEL engineer for control.
13. Re-testing / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such IMTE so that work does not suffer when the particular instrument is sent for calibration. Also if any IMTEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and recall i.e., repeat the readings taken by that instrument, failing which BHEL may deploy IMTEs and retake the readings at contractor's 'cost.
14. BHEL shall have lien on all T&P, IMTEs and other equipment of the contractor brought to the site for the purpose of erection, testing and commissioning. BHEL shall continue to hold the lien on all such items throughout the period of contract. No material brought to the site shall be removed from the site by the contractor and/or his subcontractors without the prior written approval of the engineer.
15. The contractor shall submit month wise T&P deployment plan. It is only to assess the capability as well as understanding of the contractor to execute the work. However it shall be the contractor's responsibility to deploy the required T&Ps, for timely and successful completion of the job, to any extent over and above those indicated in the above deployment plan (including those which are not covered in the plan submitted) without any compensation on this account.
16. If the work related to T & Ps mentioned above is completed then, BHEL can release that T & P during contract period / extended period if any. However, written permission shall be taken by contractor from BHEL construction Manager for releasing the T&P.
17. In the eventuality of contractor not deploying cranes / abnormal down time of cranes in his scope during the period specified above, and BHEL arranges for the same [either BHEL's own cranes / hired cranes], prevailing BHEL Corporate Crane hire charges (may vary from time to time) shall be recovered from the contractor's running bills.
18. The contractor shall arrange crane operator, diesel, petrol and other consumables required for the tools and plants, equipments etc. Preventive and routine maintenance of T & P are also to

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

be arranged by the contractor at his cost without any delay. Required number of experienced mechanics and helpers for routine maintenance of the above cranes shall be provided by the contractor within his quoted rate.

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Chapter – V: T&Ps and MMEs to be Provided by BHEL

**BHEL shall not provide any T&Ps for this scope of work.
All T&Ps required for handling of items / materials to be arranged by bidder.**

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Chapter – VI: Time Schedule

6.0 Time Schedule and Mobilization:

6.1 Initial Mobilization and Time Schedule:

After issue of LOI (through Fax/courier/email) the contractor shall report to the Construction Manager/Site In-Charge of BHEL at site within seven (07) days from date of LOI and submit detailed mobilization plan to start work within 15 days from date of LOI; unless instructed by BHEL to differ start of work in writing.

The contractor has to subsequently augment his resources in such a manner that the entire works are completed within the contract period of **06 (Six) Months from the date of start of work for both PKG-A & PKG-B** in a manner required by BHEL to match with the project schedule.

Start of work shall be considered as 15 days after date of LOI or as instructed by BHEL in writing.

6.2 Completion Period and Schedule of Important Milestone:

The entire balance 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. | Completion Civil work of following Activity/facilities <u>PKG-A</u> | Completion Period from DOS |
|---------|--|-------------------------------|
| 1 | Duct & Structure - Chimney to booster -1 | 1 st Month |
| 2 | RC Pump & Oxidation Blower Shed - 2 | 1 st Month |
| 3 | Pipe Rack - PR-1 | 1 st Month |
| 4 | Duct & Structure - Chimney to booster -2 | 2 nd Month |
| 5 | Pipe Rack - PR-2 & PR-3 | 2 nd Month |
| 6 | Auxiliary Tank | 2 nd Month |
| 7 | Wet Ball Mill Building & Machine | 2 nd Month |
| 8 | Ball Mill | 2 nd Month |
| 9 | Misc. Tanks work | 3 rd Month |
| 10 | Lime Stone slurry (2 nos) | 3 rd Month |
| 11 | Gypsum Dewatering Building | 5 th Month |
| 12 | FGD Control Building | 6 th Month |

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Chapter – VI: Time Schedule

| Sl. No. | Completion Civil work of following Activity/facilities <u>PKG-A</u> | Completion Period from DOS |
|---------|--|-------------------------------|
| 13 | Road, Pavement and other misc. works | 6 th Month |

| Sl. No. | Completion Civil work of following Activity/facilities <u>PKG-B</u> | Completion Period from DOS |
|---------|---|-------------------------------|
| 1 | Conveyers for Lime LBC 1A/1B and LTP-1 | 1 st Month |
| 2 | DG foundations | 1 st Month |
| 3 | Lime Stone Storage Silo | 2 nd Month |
| 4 | Cable rack | 2 nd Month |
| 5 | Crusher House - release of front for equipment erection | 3 rd Month |
| 6 | Gypsum Shed | 4 th Month |
| 7 | Pump house for LHP & GHP | 4 th Month |
| 8 | Truck Tippler | 5 th Month |
| 9 | LHP MCC | 6 th Month |
| 10 | Day Silo, Misc. Buildings, Road & Drain and Paving work | 6 th Month |

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 for <u>PKG-A</u> | Completion Period from DOS |
|------------|---|-------------------------------|
| M1 | RC Pump & Oxidation Blower Shed - 2 | 1 st Month |
| M2 | Misc. Tanks work | 3 rd Month |

| Milestones | Civil work of following Activity for <u>PKG-B</u> | Completion Period from DOS |
|------------|---|-------------------------------|
| M1 | Lime Stone Storage Silo | 2 nd Month |
| M2 | Truck Tippler | 5 th Month |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

Note: Refer **Clause no.-8 of NIT “Annexure-12-Important Information”** 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.
- Successful bidder, on award of work, shall prepare, submit and obtain approval of L2 & L3 schedule, detailed PERT network to meet schedule furnished above before start of work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: TERMS OF PAYMENT

7.0 **TERMS OF 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:

7.1 **Progressive Payment against Civil and structural Works.**

100% of civil and structural works:

- a. Certification by the engineer in-charge for the quantum of work completed.
- b. Certification by the engineer in-charge/Owner's field quality surveillance representative for the successful completion of quality checkpoints involved in the quantum of work billed.

7.1.1 **Documents required for payment are as under:**

- The protocols for the work done in a month shall be submitted in triplicate duly agreed/signed by BHEL Engineer/customer.
- PVC calculation and copy of all applicable indices.
- All supporting documents including HR compliances, MRC (Material Receipt Certificate) for supplies, Quality documents, signed protocols for quantum of work completed & billed are to be submitted along with each running bills.
- Consumption report of reinforcement steel & cement shall be submitted along with each running bill.
- Contractor shall submit any additional documents as desired by the customer.

7.2 **Note:**

Payment for running bills shall be released normally within 30 days of submission of running bill complete in all respects with all supporting 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:

- The RA bill payments are interim payments.
- Recoveries because of electricity, statutory deductions etc. shall be made as per terms of contract.
- BHEL will release payment through Electronic Fund Transfer (EFT)/RTGS.
- Final bill shall be submitted after completion of all works covered under this contract.
- Supplier invoices pertaining to all material procurement and material test certificate shall be submitted to BHEL for verification purpose.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: TERMS OF PAYMENT

- All statutory/ regulatory obligations including EXIM policies shall be complied by the successful bidder and supporting documents towards the same shall be submitted to BHEL by the successful bidder.

7.3 Break-up of Payment for Civil works of steel framed structure and foundation works:

- a) 85% payment shall be released for BOQ Items of Excavation, PCC, Reinforcement Fixing for Raft, Formwork for Raft, RCC Raft, Reinforcement Fixing for Pedestal, Formwork for Pedestal, RCC Pedestal and Backfilling on certification of measurement.
- b) Balance 15% payment as per Sl. No. (a), shall be released on handing over of the pedestals for structure/mechanical/electrical/etc. erection where RCC floor/roof slab is not available. In case, RCC floor/roof slab is available then 7.5% shall be withheld and it shall be released as per Sl. No. (c).
- c) Balance 7.5% payment as per Sl. No. (b), shall be released progressively on casting of RCC floor/roof slab.

7.4 Break-up of Payment for Civil works of RCC framed structure:

- a) 85% payment shall be released for BOQ Items of Excavation, PCC, Reinforcement Fixing for Raft/Footing, Formwork for Raft/Footing, RCC Raft/Footing, Reinforcement Fixing for Column, Formwork for Column, RCC Column, Reinforcement Fixing for Intermediate Beams/Floor Beams/Roof Beams, Formwork for Intermediate Beams/Floor Beams/Roof Beams, RCC for Intermediate Beams/Floor Beams/Roof Beams, Formwork for Floor Slab/Roof Slab, Reinforcement Fixing for Floor Slab/Roof Slab, Parapet Wall and Backfilling on certification of measurement.
- b) Balance 7.5% payment as per Sl. No. (a), shall be released progressively on casting of Column, Intermediate Beams and Floor Beams.
- c) Balance 7.5% payment as per Sl. No. (a) & (b), shall be released progressively on casting of Floor Slab and Roof Slab along with Parapet Wall.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII : Taxes and Duties

8.0 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
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.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII : Taxes and Duties

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.
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.**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII : Taxes and Duties

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)
- 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 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII : Taxes and Duties

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 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.

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(iii) Disbursement of Wages made to the Building Workers for preceding wage month.

(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.

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CHAPTER-IX: SPECIFICATIONS & DRAWINGS

9.0 Following technical Specifications and Drawings shall be integral part of this tender:

| SL. NO. | Document |
|---------|---|
| 1. | Section A - SCOPE OF WORK |
| 2. | Section B - PROJECT INFORMATION |
| 3. | Section C - TECHNICAL REQUIREMENTS SPECIFIC TO THE CONTRACT |
| 4. | Section D - TECHNICAL SPECIFICATIONS |

NOTE- ALL THE ABOVE MENTIONED DOCUMENTS ARE UPLOADED ON E-PROCUREMENT PORTAL AS VOL-I-E-2822.

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Chapter-X: APPENDIX

10.0 **TENTATIVE MANPOWER REQUIREMENTS:**

- (a) **Project manager – 01** with adequate experience of minimum 10Years in Industrial Foundation, Building & Structural Works, Power Plant Civil & architectural Works.
- (b) Experienced Civil Engineers – 02 heads
- (c) Experienced Foreman / Supervisors – 03 heads
- (d) Planning & Billing Engineer – 01 heads (**Min 1 head including documentation**)
- (e) Stores, Gate Pass – 01 heads
- (f) Accounts & Administration- 01 head
- (g) Quality Control Engineer/Chemist – 01 head (**min 1 head**)
- (h) Safety Engineer (officer) – 01 head (**min 1 head**)
- (i) Surveyor – 01 heads capable to handle total station
- (j) Operator, Licensed Electrician, Mechanic - As per requirement
- (k) Experienced Carpenters & Helpers – Lot for similar nature of work and as per requirement.
- (l) Experienced Bar Benders & Helpers – Lot for similar nature of work and as per requirement.
- (m) Security Guards (Round The Clock) – As per requirement

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

10.2 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.

10.3 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.

10.5 The month-wise manpower deployment plan to be submitted to BHEL and is only to assess the capability as well as understanding of the contractor to execute the work. It shall be the contractor's responsibility to deploy the required manpower, for timely and successful completion of the job, to any extent over and above those indicated in the above deployment plan (including those which are not covered in the plan submitted) without any compensation on this account.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
ANNEXURE-1

Annexure 1: FIELD QUALITY LAB EQUIPMENTS

- a.** Slump cone with tamping rod – 02no
- b.** Core cutter test apparatus – 05sets
- c.** Oven (capacity 120ltr, range – 250c) – 1no
- d.** Moisture container(steel/aluminum) – 06nos
- e.** Rapid moisture meter – 02nos
- f.** Physical balance – 02no.
- g.** Jars – 4 nos.

Note: This list is indicative only. The equipment required to comply with necessary quality norms shall be arranged by bidder without any additional cost to BHEL .

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

This Chapter consists of Part A & Part B of Volume II “Price bid”:

| CONTENTS | |
|---|--|
| Description | Remarks |
| PART A: Instructions to the Bidders | Instructions |
| PART B: BOQ and % weightage for amount of individual items of Schedule of quantity | BOQ and % weightage for amount of individual items of Schedule of quantity |
| PART C: Total Lump Sum Price for entire scope of Work | This part is available in the E- Procurement portal entitled as “ Part-C of Vol-II Price Bid ”. |

Part A: Instructions to the Bidders

1. Bidders shall quote **Total Lump-sum Price for the entire scope of work (for PKG-A & PKG-B) Only in Rupees in the excel sheet provided in the E-Procurement Portal titled as “Part-C of Vol-II Price Bid”**. Price mentioned elsewhere in the offer of the bidder shall be treated as Null and Void.
2. This Total price shall be divided in following manner for each package (**PKG-A & PKG-B**)-

| S. No. | Description | Weightage (%) |
|--------|--|---------------------|
| 1 | PKG-A: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT | 55.565238210922200% |
| 2 | PKG-B: BALANCE MAIN CIVIL PACKAGE INCLUDING FGD AND LHP AND GHP SYSTEM EXCLUDING RMC SUPPLY, SHOP FABRICATION AND ERCETION AT 2X250 MW NSPCL BHILAI FGD PROJECT | 44.434761789077800% |
| | Total Amount (Rs) | 100.00% |

3. BHEL has fixed the % weightages as in “Part-B” for the amount of individual items of Schedule of Quantity w.r.t. the Derived price for each package (**PKG-A & PKG-B**) as mentioned in sr no-2 above.
4. Based on the pre-fixed % weightages, amount of individual items shall be derived by BHEL for Package. This amount shall not be rounded off.
5. Based on the quantities of individual item and the amount arrived in Sl No 4 above, item rate of individual items shall be derived by BHEL for Package. This item rate shall be rounded off up to two decimal places and shall be used to calculate the total amount of an item.
6. For the convenience of bidders, BHEL has issued an excel sheet (file titled as Excel Sheet for Calculation Purpose only-2822) with all requisite formulae as detailed above for Package. **However, this excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.**
7. 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 serial no 5 above.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

PART B: % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in “Part C of Vol-II-Price Bid”) for Package are given in following table-

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|-------------|------------|------------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 100 | EARTH WORK | | | |
| | Earth work: Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following: | | | |
| A101 | Earth work in excavation in all types of soil/ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 km, spreading/levelling of disposed materials etc all complete for following depths below ground level. | | | |
| a | Depth from ground level but not exceeding 2 m | CUM | 9730.0 | 1.9839634022 |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | 7710.0 | 1.9651950577 |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | 1822.5 | 0.5806699628 |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | | |
| e | Depth exceeding 8 m but not exceeding 10 m | CUM | | |
| 103 | Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting, (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level. | | | |
| a | Depth from ground level but not exceeding 2 m | CUM | | |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | | |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | | |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | | |
| e | Depth exceeding 8 m but not exceeding 10 m | CUM | | |
| 104 | Earth work in excavation upto any depth below ground level in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge. | | | |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | | |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|---------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | | |
| e | Depth exceeding 8 m but not exceeding 10 m | CUM | | |
| 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 | 27737.8 | 5.4207431393 |
| b | Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) | CUM | 100.0 | 0.0216636339 |
| 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 materials earth directly from excavation within a lead upto 1Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following: | | | |
| a | Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII) | CUM | 20000.0 | 1.9539557616 |
| b | Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) | CUM | 100.0 | 0.0102574577 |
| A109 | Extra over ST No. 101 and 103 to A108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km. | CUM | | |
| A110 | Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness so as to achieve required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following: | | | |
| a | Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) | CUM | 100.0 | 0.1063075069 |
| b | Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII) | CUM | 10.0 | 0.0095672544 |
| A111 | Supplying and filling sand upto any depth under floors, around foundations, plinths, paving, passages, 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 | 633.8 | 1.4686634669 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A112 | 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, paving, tank foundations, 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 | 1651.5 | 3.8597998180 |
| A113 | Earth work in stripping of top soil upto a minimum depth of 0.30m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge. | SQM | | |
| 200 | CONCRETE WORKS | | | |
| | 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: (BHEL will supply Ready Mix as per Scope of Matrix). (Scope of transportation of Concrete through Transit Mixer from Batching Plant to Pouring Point & Concrete Pouring through Concrete Pump/Suitable Boom Pressure as per site requirement is in BHEL's RMC Agency scope) | | | |
| 201 | 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 | 905.4 | 1.3732631160 |
| 202 | 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 | 81.0 | 0.1228594240 |
| 203 | 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 | 10.0 | 0.0151682702 |
| 204 | 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 | 20.0 | 0.0303349202 |
| A204 | Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 12 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete. | CUM | 38.3 | 0.0581115517 |
| 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 | | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following. | | | |
| a | M 25 Grade | CUM | 3400.0 | 5.1570466020 |
| b | M 30 Grade | CUM | 100.0 | 0.1516778412 |
| Ac | M 35 Grade | CUM | 190.0 | 0.2881874123 |
| 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 upto 9 Mtr 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 | M25 Grade | CUM | 880.0 | 1.3347656510 |
| b | M 30 Grade | CUM | 10.0 | 0.0151682702 |
| A207 | Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills, Booster fans, Ball mills, etc. at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system but including TG foundation columns with addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing | | | |
| a | M 30 Grade | CUM | | |
| b | M 35 Grade | CUM | 10.0 | 0.0151682702 |
| 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. (Payment of welded wire mesh, chicken wire mesh shall be made separately) | | | |
| a | M20 grade | CUM | 35.0 | 0.0530873254 |
| b | M25 grade | CUM | | |
| 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 any level or thickness, drains etc complete as per following. | | | |
| a | 1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume) (M15) | CUM | 27.1 | 0.0410282104 |
| b | 1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume) (M20) | CUM | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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. | | | |
| a | M 25 grade | CUM | 22.0 | 0.0333695463 |
| b | M 30 grade | CUM | 10.0 | 0.0151682702 |
| 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 be ensured including structural grouting if required. | | | |
| a | M 25 grade | CUM | 5.0 | 0.0075841351 |
| b | M 30 grade | CUM | 5.0 | 0.0075841351 |
| 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 | 10.0 | 0.0215161961 |
| b | Reinforced cement concrete of all grades | CUM | 10.0 | 0.0310105417 |
| 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 | 10.0 | 0.0009559153 |
| 217 | Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut. | SQCM | 2.0 | 0.0000129616 |
| 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 | 10.0 | 0.0045025233 |
| 219 | Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification. | SQM | 5.0 | 0.0009672567 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | | |
| 224 | Extra for RCC work above 9 Mtr above FFL for each 5 Mtr lift or Part Thereof | CUM | 110.0 | 0.0165502969 |
| 300 | FORM WORKS | | | |
| | FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following: | | | |
| 301 | Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.. | SQM | 7349.4 | 7.0247950019 |
| A302 | Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge. | SQM | 2560.0 | 2.9091549746 |
| B302 | Ordinary form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge. | SQM | 500.0 | 0.4501146102 |
| 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 | 162.0 | 0.0701933494 |
| b | Pockets of depths more than 150mm and upto 300 mm depth | EACH | 37.0 | 0.0282140843 |
| c | Pockets of depths more than 300mm and upto 600 mm depth | EACH | 34.0 | 0.0478087285 |
| d | Pockets of depths more than 600mm and upto 1000 mm depth | EACH | 54.0 | 0.1212376084 |
| e | Pockets of depths more than 1000mm and upto 1500 mm depth | EACH | 10.0 | 0.0327959971 |
| f | Pockets of depths more than 1500mm and upto 2000 mm depth | EACH | 10.0 | 0.0434374411 |
| 400 | REINFORCEMENT | | | |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | 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 | | |
| A402 | Providing, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 having minimum elongation of 14.5 % or Fe-500D conforming to IS:1786 including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(BHEL will supply TMT free of Cost as per TCC) | MT | 338.0 | 6.7873537326 |
| A402-A | Taking delivery from BHEL store, unloading the same at contractor's yard straightening, cutting, bending, of steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 having minimum elongation of 14.5 % or Fe-500D conforming to IS:1786 including all labours and T&P all complete. | MT | 10.0 | 0.0913044967 |
| A402-B | Placing in position, binding in position the cut and bend reinforcement steel using binding wires the steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 having minimum elongation of 14.5 % or Fe-500D conforming to IS:1786 including all labours and T&P all complete | MT | 10.0 | 0.1095057728 |
| 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. | 1.0 | 0.0006318762 |
| b | 16mm Reinforcement bar | Nos. | 1.0 | 0.0009996606 |
| c | 20mm Reinforcement bar | Nos. | 1.0 | 0.0014095701 |
| 406 | 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 conforming 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). | | | |
| a | 12mm dia | Nos. | 1.0 | 0.0000696684 |
| b | 16mm dia | Nos. | 1.0 | 0.0000891108 |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| c | 20mm dia | Nos. | 1.0 | 0.0001117935 |
| d | 25mm dia | Nos. | 1.0 | 0.0001830821 |
| e | 28mm dia | Nos. | 1.0 | 0.0002284476 |
| f | 32mm dia | Nos. | 1.0 | 0.0002981160 |
| 500 | WATER PROOFING WORKS | | | |
| | 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 for the following: | | | |
| A502 | Providing and laying topping plaster with cement mortar 1:4 (1 cement : 4 sand) and thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete. | SQM | 1301.8 | 0.2792633755 |
| A506 | Providing and applying PU based water proofing treatment with one coat of polymerised mastic over the RCC roof to achieve smooth surface as 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 (ASTM C 836 and ASTM C 898), 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 | 1301.8 | 2.3670051595 |
| 507 | Providing and laying wearing course consisting of 25mm 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 RMC as per Scope of work) | SQM | 1301.8 | 1.0010005193 |
| 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 filled up with (silicon/elastomeric) joint sealant, 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) | SQM | 373.5 | 0.4553883465 |
| B511 | Providing and applying min two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm) with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete. | SQM | 3550.0 | 0.9199259370 |
| 513 | Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete. | KG | 50.0 | 0.0124268994 |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A518 | Providing and applying waterproofing treatment (two component transparent polyamide cured epoxy sealer coating, having solid by volume minimum 40%+ 2%, of minimum 50 micron DFT & sealer coat shall be followed with the application of epoxy phenolic coating, solid by volume minimum 63%, of minimum 400 micron DFT for the concrete surfaces of underground water retaining structure including surface preparation etc. all complete as per specification. | SQM | 10.0 | 0.0040342868 |
| A519 | Providing and applying waterproofing treatment with minimum 400 micron food grade epoxy coating complying to FDA title 21, Part 175.300 for the internal concrete surfaces of water retaining structure including surface preparation etc. all complete as per specification. | SQM | | |
| A520 | Providing and fixing lining on internal surfaces of sumps with replaceable chlorobutyl/bromobutyl rubber lining of minimum 5 mm thickness or with vinly ester based flake glass lining of minimum 3 mm thickness etc. all complete as per specification. | SQM | | |
| A521 | Providing and fixing acrylic based polymer modified cementitious composite coating system etc. all complete as per specification. | SQM | 10.0 | 0.0054762608 |
| A522 | Providing and fixing minimum two coats acrylic based polymer modified cementitious composite coating system including mixing of fine silica/quartz sand of 0.6 mm nominal size for better abrasion resistance and total nominal thickness of such coating shall be minimum 1.5 mm etc. all complete as per specification. | SQM | 10.0 | 0.0057500738 |
| B522 | Providing and fixing waterproofing treatment to be provided on sunken portion of all vertical and horizontal surfaces of depressed portions of false floor, toilets, W.C., kitchen, Pantry and the like consisting of : (i) Ist course of applying cement slurry @ 4.4 kg/sq.m mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface. (ii) IInd course of 20 mm cement plaster 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface. (iii) IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sq.m of area. (iv) IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sq.m) etc. all complete. | SQM | 10.0 | 0.0099771638 |
| | 600 JOINTS AND FILLERS | | | |
| | 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 for the following: | | | |
| 601 | Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete. | | | |
| a | 12 mm wide joints. | SQM | 10.0 | 0.0104502609 |
| b | 20 mm wide joints. | SQM | 10.0 | 0.0164822487 |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| c | 25 mm wide joints | SQM | 10.0 | 0.0202637850 |
| d | 50 mm wide joints | SQM | 10.0 | 0.0391261009 |
| 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 | 10.0 | 0.0118096049 |
| b | 50mmX25mm | RM | 10.0 | 0.0227491649 |
| 604 | 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. | | | |
| a | 10mm X 40mm | RM | 10.0 | 0.0007015446 |
| b | 12mm X 25mm | RM | 10.0 | 0.0006367368 |
| c | 20mmX25mm | RM | 10.0 | 0.0007647323 |
| Ae | 100 mm wide joints with polystyrene board of type-1 conforming to IS: 4671 with density 20 Kg/cum | SQM | 10.0 | 0.0051165774 |
| 606 | Providing and installing PVC joint sealing strips of minimum 3mm thickness and minimum width 100 mm at the construction, expansion and isolation joints from reputed manufacturers as a continuous diaphragm to contain the filler material and/ or to exclude passage of water or any other material into or out of the structure, without any longitudinal joint; and shall be procured and installed in largest practicable lengths having a minimum number of transverse joints with jointing procedure as per the manufacturer's recommendations including the material and tools required for jointing, testing, protection, etc all complete. The joints in rubber seals shall be vulcanised as needed. | RM | 10.0 | 0.0020398261 |
| 607 | Providing and installing strong and tough alkathene sheet or equivalent of about 1 mm in thickness in isolation joints and shall be fixed by an approved adhesive compound on the cleaned surface of the already set concrete as per the manufacturer's recommendations, to cover it fully including the material and tools required for jointing, testing, protection, etc all complete. | SQM | 10.0 | 0.0016995851 |
| 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 | 10.0 | 0.0011892235 |
| b | 12mm X 25mm | RM | 10.0 | 0.0009980404 |
| c | 20mmX25mm | RM | 10.0 | 0.0013593440 |
| 609 | 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: | | | |
| a | 25mmX25mm | RM | 10.0 | 0.0041849650 |
| b | 50mmX25mm | RM | 10.0 | 0.0074772022 |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | 10.0 | 0.0040780320 |
| 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 | 10.0 | 0.0144440428 |
| b | 50mmX25mm | RM | 10.0 | 0.0279953579 |
| 613 | Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete. | Kg | 10.0 | 0.0024221923 |
| 614 | Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete. | Kg | 10.0 | 0.0075825149 |
| 615 | Providing and fixing 300 mm wide Stainless steel strips over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete. | Kg | 10.0 | 0.0069879032 |
| 700 | MS EMBEDMENTS | | | |
| | MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| 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 | 1.0 | 0.1524490543 |
| A701 | 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, manual Cleaning and providing with Primer Coat of Chlorinated Rubber based Zinc Phosphate Primer of Minimum 50 Micron Dry Film Thickness (DFT). etc. all complete. | MT | 4.0 | 0.7611305769 |
| 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 | | |
| A703 | Same as above items 701, A701 & 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 | 9.9 | 0.3427604570 |
| 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 | 18.0 | 0.6188045041 |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | 10.0 | 0.0015294645 |
| b | PVC pipes / conduits of all diameters | Kg | 10.0 | 0.0054163135 |
| c | UPVC pipes / conduits of all diameters | Kg | 10.0 | 0.0056496217 |
| d | Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide: | | | |
| i | 8mm Dia | EACH | 5.0 | 0.0004568951 |
| ii | 10mm Dia | EACH | 5.0 | 0.0005314241 |
| iii | 12mm Dia | EACH | 5.0 | 0.0005946117 |
| iv | 14mm Dia | EACH | 5.0 | 0.0007744534 |
| e | Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel: | | | |
| i | HST M8 | EACH | 5.0 | 0.0010839108 |
| ii | HST M10 | EACH | 5.0 | 0.0015505271 |
| iii | HST M12 | EACH | 5.0 | 0.0024740385 |
| iv | HST M16 | EACH | 5.0 | 0.0044393356 |
| v | HST M20 | EACH | 5.0 | 0.0090698544 |
| vi | HST M24 | EACH | 5.0 | 0.0119376004 |
| f | Chemical Expansion fasteners (galvanised)of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc: | | | |
| i | HAS-E5.8 M8 | EACH | 5.0 | 0.0025275050 |
| ii | HAS-E5.8 M10 | EACH | 5.0 | 0.0029957415 |
| iii | HAS-E5.8 M12 | EACH | 5.0 | 0.0036859447 |
| iv | HAS-E5.8 M16 | EACH | 5.0 | 0.0058618673 |
| v | HAS-E5.8 M20 | EACH | 5.0 | 0.0094522205 |
| vi | HAS-E5.8 M24 | EACH | 5.0 | 0.0127023326 |
| 706 | Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete. | SQM | 5.0 | 0.0130846988 |
| 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 | 1.0 | 0.1268499655 |
| 800 | GROUTING | | | |
| | 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 for the following: | | | |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|-----|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 801 | Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing. | SQM | 1.0 | 0.0011114541 |
| 802 | Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement : 1 sand) using non shrink admixture etc. all complete. | CUM | 1.0 | 0.0437760620 |
| 803 | Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). | CUM | 1.0 | 0.0332690942 |
| 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 | 1.0 | 0.1356006414 |
| 805 | Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor). | CUM | 1.0 | 0.1602357138 |
| 806 | Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout. | Kg | 1.0 | 0.0039419356 |
| 807 | Providing on the outer surface of walls, frames, rafts and roof slabs coming in contact with earth, Polymer modified cementitious coating in two layers as specified and as per manufacturer's specifications shall be provided directly on the concrete surface : 50 mm thick P. C. C. (1 : 2 : 4 with 10 mm nominal size stone aggregates) shall be provided under the raft i.e. over the lean concrete, followed by polymer modified cementitious coating in two layers (slurry mix application) as per manufacturer's specification. 50 mm thick P. C. C. (1 : 2 : 4) with 10 mm nominal size stone aggregates shall then be laid over the polymer modified cementitious coating before laying the raft. | SQM | 1.0 | 0.0017157870 |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 808 | Providing Chemical Injection Grouting with Minimum, 12 mm dia (NB) threaded nozzle of suitable length over the surface and along the construction joint line in a grid pattern at a spacing not exceeding 1.5m c/c before concreting operation After the nozzles are fully set, neat cement slurry admixed with water soluble non-shrink polymer / monomer based chemical shall be injected through the net - work of nozzles with low pressure grout pumps at a pressure of about 2.0 Kg/Sqcm. Cement slurry shall be prepared by mixing cement with non-shrink polymer/monomer @ 500 gm/50 kg bag of cement and water, ensuring that Water: Cement ratio does not exceed 2 (by weight). Wetter the structure, lesser should be the water cement ratio. The property of the polymer/monomer should be such that when it is mixed with water @ 0.5% by weight of water, the viscosity of the resultant solution (water and polymer/monomer) should not be more than 1.2 centipoises. Plasticizing agent shall be added wherever required. The grouting shall be started at very low pressure and increased gradually to a required pressure. The grouting shall continue, till the hole refuses to take any further grout, even at an increased pressure. Applied pressure shall not be more than the designed strength of the concrete. After completion of grouting operation, the nozzles shall be sealed properly to the satisfaction of the Engineer | SQM | 1.0 | 0.0011438580 |
| | | | | |
| | | | | |
| 900 | DOORS, WINDOWS, VENTILATORS, LOUVERS | | | |
| | 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 for the following: | | | |
| A903 | Providing, fitting and fixing factory made pre-laminated solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partial 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 handles 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 anodised aluminium color dyed), finish synthetic paint 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) | SQM | 35.0 | 0.3108652886 |
| A904 | Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Side, top | SQM | 25.0 | 0.2725022997 |

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|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | and bottom edges of shutters shall be reinforced by continuous pressed steel channel with minimum 18G. | | | |
| 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/INDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float/toughened glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) | KG | 210.0 | 0.2033993419 |
| 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, vision panel of minimum 11mm thick inter layered fire resistant glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs. | SQM | 25.0 | 0.4585331460 |
| 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 | 210.0 | 0.8983514138 |
| b | fixed type | SQM | 40.0 | 0.1125744231 |

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|--|--|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A909 | Providing and fixing anodised aluminium work of INDAL, Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections(of minimum 2mm wall thickness) 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 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 measured. | Kg | 1250.0 | 1.1283851494 |
| 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 | 25.0 | 0.0735455339 |
| b | Floor mounted Hydraulic door closers as per IS 6315 | EACH | 1.0 | 0.0050533897 |
| 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 | 1.0 | 0.0002446495 |
| 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 | 1.0 | 0.0046143168 |
| b | Mechanically Operated | SQM | 53.0 | 0.3504482846 |
| c | Electrically operated | SQM | 1.0 | 0.0071158986 |
| 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. | | | |
| Aa | 6 mm thick ground glass | SQM | 10.0 | 0.0427634398 |
| Ad | 6 mm thick laminated glass | SQM | 10.0 | 0.0319470147 |
| Ae | 3mm thick Polycarbonate sheet fire retardant and ultra violet resistant | SQM | 10.0 | 0.0323617847 |
| Ah | 6 mm thick clear toughened glass | SQM | 318.0 | 1.2245955980 |

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|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| AAh | 6 mm thick wired glass | SQM | 10.0 | 0.0236305512 |
| i | Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured) | SQM | 10.0 | 0.0596993432 |
| Ai | Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 24 mm thick air gap for thermal insulation (only single elevation area to be measured) | SQM | 5.0 | 0.0358630272 |
| e | 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges. | SQM | 5.0 | 0.0235981473 |
| 916 | Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete. | RM | 5.0 | 0.0021354177 |
| 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 | 5.0 | 0.0141880519 |
| 918 | Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete. | SQM | 5.0 | 0.0285899696 |
| 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 | 5.0 | 0.0397093713 |
| A920 | Providing and fixing of welded wire fabric of 1.6mm thick wire as per IS: 4948 and 12mm x 30mm mesh size. In conveyor gallery Windows. | SQM | 5.0 | 0.0245459617 |
| A923 | Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). | KG | 5.0 | 0.0045138646 |
| 1000 | BRICKWORK | | | |
| | 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 for the following: | | | |
| 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 | 125.0 | 0.8697128383 |
| c | Using burnt clay bricks of class designation 7.5 of nominal dimension | CUM | | |
| | | | | |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| 1002 | Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting. | | | |
| a | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making) | CUM | 450.0 | 3.8557088244 |
| c | Using burnt clay bricks of class designation 7.5 of nominal dimension | CUM | | |
| A1002 | Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 345mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting. | | | |
| d | 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 | 50.0 | 0.4284120916 |
| 1003 | Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. | | | |
| a | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ² (including cost of cement for brick making) | SQM | 23.0 | 0.0250449819 |
| c | Using burnt clay bricks of class designation 7.5 of nominal dimension | SQM | | |
| 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 | 10.0 | 0.0204258045 |
| 1006 | Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately) | CUM | 10.0 | 0.0744949685 |
| 1007 | Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer. | SQM | 10.0 | 0.0023897883 |
| 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 | 20.0 | 0.0463051871 |
| 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 | 20.0 | 0.0116265228 |
| 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 | 20.0 | 0.0247258034 |
| 1011 | Providing and filling brick bats in soak pits all complete. | CUM | 25.0 | 0.0422044723 |
| 1100 | DAMP PROOF COURSE | | | |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| | DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| A1101 | Providing Damp Proof Course of following thickness with M20 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 etc. all complete as per specification. | | | |
| b | 50mm thick | SQM | 90.5 | 0.0705028068 |
| 1200 | CEMENT MORTAR PLASTER | | | |
| | 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 for the following: | | | |
| A1201 | Providing 18mm thick plaster consisting first (base) layer of 12mm thick plaster in cement sand mortar 1:6 and second (finish) layer of 6mm thick plaster in cement sand mortar 1:4 including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete as per specification. | SQM | 1820.6 | 0.8358345506 |
| 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 | 1770.6 | 0.5619534645 |
| A1202 | Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on walls finished to a smooth finish as per specification all complete. | SQM | 400.0 | 0.1264919023 |
| 1203 | Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete. | SQM | 100.0 | 0.0302522902 |
| 1204 | Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete. | SQM | 20.0 | 0.0061697044 |
| 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 | 10.0 | 0.0028612652 |
| 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 battons, 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 | 100.0 | 0.0059477376 |
| 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 | 20.0 | 0.0167803647 |
| 1209 | Ruled pointing in masonry in Cement Mortar 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete. | SQM | 10.0 | 0.0020900522 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| A1210 | Providing drip course in cement mortar (1:3) in parapet, chajjas, window/door heads, architectural facias, fins etc. all complete. | RM | 315.0 | 0.0210933251 |
| 1300 | FINISHES TO CONCRETE / PLASTERED SURFACES | | | |
| | FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| 1301 | Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications. | SQM | 10.0 | 0.0006091935 |
| 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 | 2000.0 | 0.2744287122 |
| 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 | 260.0 | 0.0527908297 |
| 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 | 100.0 | 0.0642747753 |
| 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 | 10.0 | 0.0038512047 |
| 1308 | Providing and applying 2 or more coats of Chlorinated Rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying chlorinated rubber zinc phosphate 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, inclusive of intermediate coat of Titanium dioxide / micaceous iron oxide complete as per specifications. | SQM | 120.0 | 0.0398892130 |
| 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 separately. | SQM | 5.0 | 0.0024837597 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| 1314 | Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film nominal thickness of 2.5 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge. | SQM | 153.0 | 0.1761735769 |
| 1316 | Providing and applying 2 mm thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer. | SQM | 10.0 | 0.0015035414 |
| 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 | 10.0 | 0.0016266763 |
| A1317 | Providing and applying 2 mm thick polymer based water resistant putty on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer. | SQM | 10.0 | 0.0018356815 |
| 1319 | Providing and applying two or more coats of Acrylic based weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification. | SQM | 10.0 | 0.0028061786 |
| A1319 | Providing and applying two or more coats of Acrylic smooth exterior paint with silicon additives of approved brand and manufacture and required shade over suitable primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification. | SQM | 2000.0 | 0.5892002921 |
| 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 | 10.0 | 0.0064078732 |
| 1400 | FLOORING AND SKIRTING | | | |
| | 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 for the following: (BHEL will not supply RMC for this item) | | | |

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|--|--|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 1401 | Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): | SQM | 505.0 | 0.4248168778 |
| A1401 | Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick M20 grade cement concrete mix (with stone chips of size 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): | SQM | 1350.0 | 1.4467875874 |
| 1402 | Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 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 1:2:4 (1 cement: 2 sand : 4 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). | SQM | 150.0 | 0.1203610826 |
| 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). | | | |
| b | 80mm | SQM | 10.0 | 0.0156705308 |
| 1406 | Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. | SQM | 5.0 | 0.0128238473 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| 1412 | Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. | SQM | 220.0 | 2.2619662657 |
| A1416 | Providing and laying vitrified ceramic tiles of mirror polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 18mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm , 3 mm groove joint pointed neatly with 3x4mm stainless epoxy grout SP-100 of laticrete or approved equivalent etc. all complete for following | | | |
| b | 10mm thick tiles In flooring | SQM | 200.0 | 0.5835036847 |
| 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 | | | |
| b | 10mm thick tiles In flooring | SQM | 10.0 | 0.0254613721 |
| d | 10mm thick tiles In skirting and dado upto specific height | SQM | 50.0 | 0.1280067851 |
| A1419 | Providing and laying granite stone slab of 18mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete. | SQM | 5.0 | 0.0580013784 |
| 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,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. | SQM | 20.0 | 0.0534939945 |
| A1422 | Providing & fixing 12mm thick Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832, 6mm ythick pointing of joints of tiles with acid/alkali resistant epox/furane mortar up to a depth of 20mm and bituminastic end sealing and including preparation of surface, application of bitumen primer, curing etc. all complete as per specification. The tiles should be abrasion resistant & durable. | SQM | 120.0 | 0.3149190177 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| A1422 | Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832, 6mm thick pointing of joints of tiles with acid/alkali resistant epoxy/furane mortar up to a depth of 20mm and bituminastic end sealing and including preparation of surface, application of bitumen primer, curing etc. all complete as per specification. The tiles should be abrasion resistant & durable. | | | |
| a | 12mm thick Acid / Alkali resistant (Chemical resistant) tiles in Dado | SQM | 70.0 | 0.1837026253 |
| b | 20mm thick Acid / Alkali resistant (Chemical resistant) tiles in Flooring | SQM | 5.0 | 0.0273375585 |
| 1428 | Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade, as per IS:3462 and laying as per IS:5318 all complete. | SQM | 5.0 | 0.0030589291 |
| 1429 | Providing and fixing removable type flooring system consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification. | SQM | 5.0 | 0.0345231255 |
| 1600 | FALSE CEILING | | | |
| | FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| A1602 | Providing, fixing and laying light weight mineral fibre 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 backed with 0.05 mm thick aluminium foil & 24 G x 25 mm mesh wire netting and shall be fixed to ceiling with 24 G wire ties and suitable fixing arrangements. 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. | SQM | 250.0 | 0.7625417672 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| A1603 | Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 backed with 0.05 mm thick aluminium foil & 24 G x 25 mm mesh wire netting and shall be fixed to ceiling with 24 G wire ties and suitable fixing arrangements. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No A2301) | SQM | 10.0 | 0.0391682260 |
| A1604 | Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamel finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183)backed with 0.05 mm thick aluminium foil & 24 G x 25 mm mesh wire netting and shall be fixed to ceiling with 24 G wire ties and suitable fixing arrangements.. 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) | SQM | 10.0 | 0.0366828461 |
| 1700 | RAIN WATER DOWN TAKE PIPES | | | |
| | 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 for the following: | | | |
| A1704 | Providing and fixing galvanised MS down take pipes conforming to IS: 1239/IS: 3589 of 150 mm dia- Medium quality as per IS:1239(part-I) all complete as per specification. (Galvanising shall be as per IS: 4736. The minimum mass of zinc coating shall not be less than 400 gms/sq.m. as per IS:6745. The zinc coating shall be smooth and shall be subjected to testing as per IS: 2633, for uniformity of coating. The zinc coating shall be free from all defects as per IS: 2629. All rain water down comers shall be provided with roof drain heads and complete with shoes bends, junctions, sockets, adapters, brackets and finished with anticorrosive painting over a coat or primer. Downcomers shall be provided with 45 x 45 cm size Khurras having minimum thickness of 30 mm with M-15 concrete over PVC sheet of 1mx1mx400micron and finished with 12 mm thick cement sand plaster 1:3.The rainwater down comers shall be provided with suitable C.I. grating at inlet point etc. all complete as specification. | RM | 260.0 | 0.9570656782 |
| 1705 | Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete. | RM | 10.0 | 0.0076651449 |

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| 1706 | Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete. | RM | 10.0 | 0.0117658597 |
| 1710 | Providing and fixing galvanised ERW steel down take pipes of medium duty as per specification of following diameters. | | | |
| C | 273mm OD and 4mm thick | RM | 10.0 | 0.0677646764 |
| 1800 | MISCELLANEOUS WORKS | | | |
| | 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 for the following: | | | |
| A1801 | Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm (complying IRC specification) in layers not exceeding 200 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum/non-expansive soil 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 | 2375.6 | 6.7817494764 |
| B1801 | Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum and compacting to 90 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill. | CUM | 5.0 | 0.0149868083 |
| 1802 | Supply and laying approved quality Stone aggregate 40mm size in transformer yards. | CUM | 10.0 | 0.0412923023 |
| 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 | 10.0 | 0.0036114157 |
| 1807 | Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment). | SQM | 1298.0 | 0.3859662101 |
| 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 | 10.0 | 0.1613860526 |
| 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 | 10.0 | 0.1761492739 |
| 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). | EACH | 20.0 | 0.2639800715 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|---------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 1811 | Construction of below ground earthing system earth electrodes as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items) | EACH | 20.0 | 0.0202637850 |
| 1812 | Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.) | EACH | 20.0 | 0.0135091900 |
| 1813 | Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete. | EACH | 20.0 | 1.1049830457 |
| 1814 | Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork. | EACH | 20.0 | 0.6441864866 |
| 1815 | Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete. | Kg | 100.0 | 0.0161420077 |
| 1818 | Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, suface preparation, curing, staging, compatible paintings etc. all complete. | CUM | 5.0 | 0.8008156453 |
| 1819 | Supply & fixing expanded metal steel sheet conforming to IS:412. Size of mesh shall be 10mmX40mm with strands of 2.5mm width and 1mm thickness to the structural steel for facilitating fireproofing works. | SQM | 10.0 | 0.0054584386 |
| 1821 | Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust supression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling). | TANK-HR | | |
| 1822 | Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification. | CUM | 2.0 | 0.0320312648 |
| 1823 | Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge. | CUM | 1.0 | 0.0038042190 |
| 1824 | Disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other civil waste, electrical waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as and when directed by BHEL. | | | |
| a | Steel scrap / metal scrap | MT | 2.0 | 0.0022893362 |
| b | Debris & Other waste materials. | CUM | 2.0 | 0.0004325922 |
| 1832 | Providing and fixing sliding layer of bitumen paper or craft paper over the screed layer for water retaining structures to destroy the bond between the screed and the base slab concrete of the water retaining structure etc all complete. | SQM | | |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A1839 | Providing bore wells in ground with perforated/non-perforated PVC pipe of standard approved make for rain water harvesting by means of mechanical equipment including pipe, drilling inside earth, weathered rock, sandstone, shale etc. upto required depth at locations shown in drawing etc all complete. Depth of borewell shall vary from 6m to 15m. Payment shall be made cumulative diameterwise as per actual length of bore well and diameter as mentioned below. | | | |
| (a) | 200 mm diameter | RM | 1.0 | 0.0007436697 |
| (b) | 300 mm diameter | RM | 1.0 | 0.0009299922 |
| A1840 | Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe. | Cum | 1.0 | 0.0052332314 |
| A1841 | Supply & packing uniformly downgraded 40mm size gravel at all depth in the pit/well dug for rain water harvesting. | Cum | 1.0 | 0.0052332314 |
| A1842 | Supply & packing uniformly downgraded 40mm size pebbles at all depth in the pit/well dug for rain water harvesting. | Cum | 1.0 | 0.0052332314 |
| A1843 | Supply & laying coarse sand layer at all depth in the pit/well dug for rain water harvesting. | Cum | 1.0 | 0.0043210614 |
| A1844 | Supply and fixing of bar screen of 5 mm square M. S. bar at inlet point of Rain water collecting tanks with 50 mm X 50 mm opening etc all complete | SQM | 1.0 | 0.0002171062 |
| A1845 | Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete. | RM | 1.0 | 0.0014338730 |
| A1846 | Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification. | RM | 1.0 | 0.0014338730 |
| A1847 | Supply & fixing Netlon jali/ PVT net in the well dug for rain water | SQM | 1.0 | 0.0002511303 |
| A1849 | Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete as per specification. | SQM | 400.0 | 0.5594535029 |
| A1850 | Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete as per specification. | SQM | 400.0 | 0.4763958013 |
| 2000 | FENCING AND GATES | | | |
| | 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 for the following: | | | |
| 2001 | Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing of height of 600 mm confirming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, | RM | 10.0 | 0.0418658515 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | accessories etc. all complete. (Structural post shall be paid separately under item 2007) | | | |
| 2003 | Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2007) | RM | 10.0 | 0.0390386103 |
| 2004 | Supplying and erecting in position 2.4 m high gavanised chain linked fencing conforming to IS 2761 of 10G hot dip galvanised steel wires woven in the form of zigzag mesh giving an opening size of 50 mm square. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2007) | RM | 1.0 | 0.0051376399 |
| 2005 | Supplying and fixing 600mm high G.I. barbed wire fencing on top of boundary wall consisting of min. 6 nos. strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply with barbs of 16G spaced at 100mm including GI clips, anchors, accessories etc. all complete. (Structural post shall be paid separately under ST No. 2007/ 2008 as the case may be) Measurement shall be for per running meter of fencing. | RM | 1.0 | 0.0001134137 |
| 2006 | Supplying and fixing 600mm high concertina on top of boundary wall including GI tension wires, clips, anchors, accessories etc. all complete. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. (Structural post shall be separately under ST No. 2007) | RM | 1.0 | 0.0004001883 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 2007 | Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts. | MT | 1.0 | 0.1434764117 |
| 2008 | Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete. | MT | 1.0 | 0.1353284485 |
| A2008 | Supply, fabrication and fixing of pre-cast RCC of minimum M20 grade 3M HIGH FENCE POST including making arrangements for fixing of chain link fencing (covered in item no. 2001 above), painting etc. all complete as per specification. | Each | 1.0 | 0.0017514313 |
| 2009 | Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. | MT | 1.0 | 0.1603944930 |
| A2009 | Supply, fabrication and installing in position and testing STEEL Gates, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, Aldrops with locking arrangement, tempered steel pivot, guide track Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete as per specification. | MT | 1.0 | 0.1603944930 |
| 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 | 1.0 | 0.1531700413 |
| 2100 | WATER SUPPLY | | | |
| | 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 for the following: | | | |
| 2101 | Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore. | EACH | 20.0 | 0.0227281023 |
| 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. | EACH | 20.0 | 0.0184783296 |
| b | 50mm nominal bore. | EACH | 20.0 | 0.0327522518 |
| 2104 | Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal 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 | 150.0 | 0.0968569066 |
| b | 20 mm nominal bore. | RM | 75.0 | 0.0548014923 |
| c | 25 mm nominal bore. | RM | 55.0 | 0.0484811097 |
| d | 50 mm nominal bore. | RM | 10.0 | 0.0129567033 |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | 20.0 | 0.0101100199 |
| b | 20 mm nominal bore. | RM | 40.0 | 0.0236192099 |
| c | 25 mm nominal bore. | RM | 80.0 | 0.0593023953 |
| d | 50 mm nominal bore. | RM | 50.0 | 0.0577745510 |
| A2106 | Providing and fixing wall to wall mirror of height 450mm & 6 mm thk float glass from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete. | EACH | 4.0 | 0.0089126954 |
| A2108 | Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) all complete. | EACH | 4.0 | 0.0053093806 |
| 2110 | Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete. | EACH | 4.0 | 0.0031610014 |
| 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. | EACH | 4.0 | 0.0047487930 |
| 2112 | Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete. | EACH | 2.0 | 0.0010920118 |
| 2113 | Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete. | EACH | | |
| A2114 | Providing & fixing in position High density polyethylene (cylindrical/vertical) molded seamless type tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105. | | | |
| a | 500 litres capacity | EACH | 2.0 | 0.0115471333 |
| b | 1000 litres capacity | EACH | 4.0 | 0.0461950138 |
| 2116 | Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete. | EACH | 1.0 | 0.0002527505 |
| 2117 | Providing and fixing metal storing cabinets all complete. | EACH | 1.0 | 0.0037604737 |
| 2118 | Providing Minimum 600 mm long porcelain tray etc all complete.. | EACH | 1.0 | 0.0020058020 |
| 2119 | Providing and fixing Recessed porcelain soap tray in shower area etc all complete. | EACH | 6.0 | 0.0037604737 |
| 2120 | Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete. | EACH | 6.0 | 0.0150467555 |
| A2121 | Providing and fixing Electric operated hand dryer with photo voltaic control including fittings, cutting and making good the wall where required etc. all complete. | EACH | 1.0 | 0.0362113692 |
| 2200 | SANITARY WORKS | | | |
| | 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 for the following: | | | |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A2201 | Supply and fixing glazed vitreous china Wash Basin of (oval shape) approved make (with photovoltaic control) 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 | 4.0 | 0.0869607526 |
| b | Colored | EACH | 1.0 | 0.0223554574 |
| 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 necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete. | EACH | 1.0 | 0.0099593417 |
| A2203 | Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete. | EACH | 1.0 | 0.0099755436 |
| 2204 | Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete. | | | |
| b | Wall mounted | EACH | 3.0 | 0.0654639988 |
| A2204 | Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat, flush valve and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete. | | | |
| b | Wall mounted | EACH | 3.0 | 0.0654639988 |
| 2205 | Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete. | EACH | 3.0 | 0.0322904961 |
| A2206 | Providing and fixing white flat back glazed vitreous china lipped urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings, with provision of squatting urinal for ladies toilet etc. all complete. | EACH | 3.0 | 0.0408597101 |
| 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 | 20.0 | 0.0098556492 |
| b | 110mm dia pipes | RM | 20.0 | 0.0140616767 |
| c | 160mm dia pipes | RM | 20.0 | 0.0192009368 |
| d | 200mm dia pipes | RM | 20.0 | 0.0233227141 |

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|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A2207 | Supply, laying and jointing CPVC pipes as per IS:15778 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 | 400.0 | 0.2069702527 |
| b | 110mm dia pipes | RM | 40.0 | 0.0295280628 |
| c | 160mm dia pipes | RM | 40.0 | 0.0403234254 |
| d | 200mm dia pipes | RM | 60.0 | 0.0734645241 |
| 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 | 20.0 | 0.032455756 |
| b | 300mm dia | RM | 200.0 | 0.466988946 |
| c | 450mm dia | RM | 45.0 | 0.187834124 |
| d | 600mm dia | RM | 65.0 | 0.352321231 |
| 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 | 90.0 | 0.087662297 |
| b | 250mm dia | RM | 70.0 | 0.103164328 |
| c | 300mm dia | RM | 10.0 | 0.016624826 |
| d | 450mm dia | RM | 10.0 | 0.023219022 |
| 2210 | 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 complete for following. | | | |
| a | 150mm dia | RM | 20.0 | 0.023381041 |
| b | 250mm dia | RM | 80.0 | 0.142804031 |
| c | 400mm dia | RM | 40.0 | 0.130576415 |
| 2211 | Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete. | EACH | 2.0 | 0.044785444 |
| 2212 | Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete. | EACH | 2.0 | 0.046846332 |
| 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 | 10.0 | 0.030608733 |
| b | 150x100mm P or S Type. | EACH | 10.0 | 0.031754211 |
| c | 150x150mm P or S Type. | EACH | 10.0 | 0.034155341 |
| 2214 | Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete. | EACH | 10.0 | 0.020694757 |
| 2215 | Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete. | EACH | 10.0 | 0.019986732 |

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|--|--|------|--------|-------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 2216 | Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete. | EACH | 5.0 | 0.350769083 |
| 2217 | Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete. | EACH | 5.0 | 0.43751597 |
| 2218 | Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete. | EACH | 10.0 | 0.026125652 |
| 2219 | Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification. | EACH | 4.0 | 0.20023186 |
| 2221 | Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,concrete to be paid seperately) | | | |
| c | 150mm dia | RM | 150.0 | 0.996293851 |
| d | 200mm dia | RM | 100.0 | 1.018066038 |
| f | 300mm dia | RM | 70.0 | 1.081088403 |
| 2400 | ROAD WORKS | | | |
| | ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation etc. as per specification drawing, relevant IRC & IS codes and as directed by the Engineer-in-charge for the following: | | | |
| 2401 | Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete. | CUM | 2325.0 | 0.325954169 |
| 2402 | Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete. | CUM | 10.0 | 0.005947738 |
| 2403 | Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete. | CUM | | |
| 2405 | Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -1), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete. | CUM | 1500.0 | 5.467357784 |
| A2405 | Construction of granular sub-base by providing close graded material conforming to specification,mixing in a mechanical mix plant at OMC,carriage of mixed material to work site,for all leads and lifts,spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density,complete as per specifications and directions of Engineer-in-Charge. CUM 160 | CUM | | |

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| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|-------|-------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 2406 | Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone(IRC 19 -grading -1) screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete. | CUM | | |
| 2413 | Supplying and laying 400mmx150mmx350mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. | RM | | |
| A2414 | Supply and laying 200 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. | RM | 50.0 | 0.08113939 |
| B2414 | Supply and laying 600 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. | RM | 100.0 | 0.542031541 |
| A2415 | Supply and laying 150mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment terms - a) On receipt of materials at site - 50%; b) On completion of erection & fixing - 50%. | RM | 200.0 | 0.183120975 |
| 2416 | Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadem course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete. | SQM | | |
| | Providing and placing concrete work in road 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: | | | |
| 2418 | Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc (RMC Shall be provided free of Cost as per TCC). | CUM | | |
| A2419 | Providing and laying (using fully mechanised paver)cement concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar) (RMC Shall be supplied free of Cost as per TCC) | CUM | | |
| A2420 | Supplying and filling sand for preparation of road sub-base/ sub-grade 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 | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-A | | | | |
|--|--|------|--------|-------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A2421 | Providing & laying dry lean cement concrete of grade M15 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (RMC Shall be Supplied free of cost as per TCC) | CUM | | |
| B2421 | Providing & laying dry lean cement concrete of grade M10 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (RMC Shall be supplied free of Cost as per TCC) | CUM | 180.0 | 0.170635749 |
| A2423 | Providing and fixing separation Membrane of impermeable plastic sheeting of 125 microns thick laid flat without creases etc. all complete | SQM | 2250.0 | 0.100978684 |
| | REINFORCEMENT | | | |
| 2425 | Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer. (BHEL will supply MS Dowel bar free of Cost as per TCC) | MT | 1.9 | 0.250943979 |
| 2426 | Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer. (BHEL will supply TMT free of Cost as per TCC) | MT | 15.0 | 0.301213784 |
| 2427 | Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer. (BHEL will supply Reinforcement free of Cost as per TCC) | MT | | |
| | MISCELLANEOUS | | | |
| 2428 | Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer. | RM | | |
| 2429 | Providing and filling in position hot applied bitumen sealing compund (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer. | RM | 950.0 | 0.024811674 |
| 2430 | Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer. | RM | | |
| 2431 | Providing & laying 75 mm thick precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer. | SQM | | |
| 2432 | Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer. | SQM | | |
| Total for PKG-A | | | | 100 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 100 | EARTH WORK | | | |
| | Earth work: Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following: | | | |
| A101 | Earth work in excavation in all types of soil/ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 km, spreading/levelling of disposed materials etc all complete for following depths below ground level. | | | |
| a | Depth from ground level but not exceeding 2 m | CUM | 1696.0 | 0.4324417588 |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | 1396.0 | 0.4449566000 |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | 70.0 | 0.0278904492 |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | 10.0 | 0.0049941855 |
| e | Depth exceeding 8 m but not exceeding 10 m | CUM | 10.0 | 0.0060031528 |
| 103 | Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting, (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level. | | | |
| a | Depth from ground level but not exceeding 2 m | CUM | 10.0 | 0.0037724841 |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | 10.0 | 0.0045261705 |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | 10.0 | 0.0054318098 |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | 10.0 | 0.0065177666 |
| e | Depth exceeding 8 m but not exceeding 10 m | CUM | 10.0 | 0.0074943173 |
| 104 | Earth work in excavation upto any depth below ground level in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge. | | | |
| b | Depth exceeding 2 m but not exceeding 4 m | CUM | | |
| c | Depth exceeding 4 m but not exceeding 6 m | CUM | | |
| d | Depth exceeding 6 m but not exceeding 8 m | CUM | | |
| e | Depth exceeding 8 m but not exceeding 10 m | CUM | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|---------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | 23550.0 | 5.7551676448 |
| b | Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) | CUM | 100.0 | 0.0270901639 |
| 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 materials earth directly from excavation within a lead upto 1Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following: | | | |
| a | Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII) | CUM | 300.0 | 0.0366510406 |
| b | Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) | CUM | 50.0 | 0.0064144386 |
| A109 | Extra over ST No. 101 and 103 to A108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km. | CUM | 100.0 | 0.0023886997 |
| A110 | Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness so as to achieve required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following: | | | |
| a | Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) | CUM | 10.0 | 0.0132928401 |
| b | Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII) | CUM | 10.0 | 0.0119637587 |
| A111 | Supplying and filling sand upto any depth under floors, around foundations, plinths, paving, passages, 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 | 200.0 | 0.5795362227 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A112 | 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, paving, tank foundations, 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 | 200.0 | 0.5845162259 |
| A113 | Earth work in stripping of top soil upto a minimum depth of 0.30m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge. | SQM | 10.0 | 0.0004234421 |
| 200 | CONCRETE WORKS | | | |
| | 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: (BHEL will supply Ready Mix as per Scope of Matrix). (Scope of transportation of Concrete through Transit Mixer from Batching Plant to Pouring Point & Concrete Pouring through Concrete Pump/Suitable Boom Pressure as per site requirement is in BHEL's RMC Agency scope) | | | |
| 201 | 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 | 475.3 | 0.9015507665 |
| 202 | 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 | 245.0 | 0.4646962954 |
| 203 | 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 | 10.0 | 0.0189677746 |
| 204 | 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 | 251.0 | 0.4760765549 |
| A204 | Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 12 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete. | CUM | 10.0 | 0.0189677746 |
| 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 | | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following. | | | |
| a | M 25 Grade | CUM | 3342.5 | 6.3397750424 |
| b | M 30 Grade | CUM | 10.0 | 0.0189677746 |
| Ac | M 35 Grade | CUM | 235.0 | 0.4457285208 |
| 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 upto 9 Mtr 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 | M25 Grade | CUM | 475.5 | 0.9018891150 |
| b | M 30 Grade | CUM | 10.0 | 0.0189677746 |
| A207 | Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills, Booster fans, Ball mills, etc. at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system but including TG foundation columns with addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing | | | |
| a | M 30 Grade | CUM | 210.0 | 0.3983111103 |
| b | M 35 Grade | CUM | 30.0 | 0.0569012978 |
| 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. (Payment of welded wire mesh, chicken wire mesh shall be made separately) | | | |
| a | M20 grade | CUM | 10.0 | 0.0189677746 |
| b | M25 grade | CUM | 10.0 | 0.0189677746 |
| 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 any level or thickness, drains etc complete as per following. | | | |
| a | 1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume) (M15) | CUM | 38.6 | 0.0731177118 |
| b | 1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume) (M20) | CUM | 10.0 | 0.0189677746 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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. | | | |
| a | M 25 grade | CUM | 10.0 | 0.0189677746 |
| b | M 30 grade | CUM | 10.0 | 0.0189677746 |
| 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 be ensured including structural grouting if required. | | | |
| a | M 25 grade | CUM | 10.0 | 0.0189677746 |
| b | M 30 grade | CUM | 10.0 | 0.0189677746 |
| 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 | 10.0 | 0.0269057943 |
| b | Reinforced cement concrete of all grades | CUM | 10.0 | 0.0387783813 |
| 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 | 10.0 | 0.0011953629 |
| 217 | Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut. | SQCM | 10.0 | 0.0000790155 |
| 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 | 10.0 | 0.0056303616 |
| 219 | Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification. | SQM | 10.0 | 0.0024170642 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|--------|---------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | 1.0 | 0.0037704581 |
| 224 | Extra for RCC work above 9 Mtr above FFL for each 5 Mtr lift or Part Thereof | CUM | 200.0 | 0.0376275913 |
| 300 | FORM WORKS | | | |
| | FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following: | | | |
| 301 | Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.. | SQM | 4639.0 | 5.5448182256 |
| A302 | Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge. | SQM | 9080.0 | 12.9030728078 |
| B302 | Ordinary form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge. | SQM | 200.0 | 0.2251455800 |
| 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 | 10.0 | 0.0054176276 |
| b | Pockets of depths more than 150mm and upto 300 mm depth | EACH | 50.0 | 0.0476767434 |
| c | Pockets of depths more than 300mm and upto 600 mm depth | EACH | 50.0 | 0.0879179247 |
| d | Pockets of depths more than 600mm and upto 1000 mm depth | EACH | 50.0 | 0.1403761195 |
| e | Pockets of depths more than 1000mm and upto 1500 mm depth | EACH | 26.0 | 0.1066283924 |
| f | Pockets of depths more than 1500mm and upto 2000 mm depth | EACH | 10.0 | 0.0543180984 |
| 400 | REINFORCEMENT | | | |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | 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 | | |
| A402 | Providing, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 having minimum elongation of 14.5 % or Fe-500D conforming to IS:1786 including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(BHEL will supply TMT free of Cost as per TCC) | MT | 362.5 | 9.1027407887 |
| A402-A | Taking delivery from BHEL store, unloading the same at contractor's yard straightening, cutting, bending, of steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 having minimum elongation of 14.5 % or Fe-500D conforming to IS:1786 including all labours and T&P all complete. | MT | 10.0 | 0.1141753866 |
| A402-B | Placing in position, binding in position the cut and bend reinforcement steel using binding wires the steel reinforcements of high yield strength deformed TMT steel bars of grade Fe-500 having minimum elongation of 14.5 % or Fe-500D conforming to IS:1786 including all labours and T&P all complete | MT | 10.0 | 0.1369359057 |
| 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. | 1.0 | 0.0007901551 |
| b | 16mm Reinforcement bar | Nos. | 1.0 | 0.0012500659 |
| c | 20mm Reinforcement bar | Nos. | 1.0 | 0.0017626537 |
| 406 | 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 conforming 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). | | | |
| a | 12mm dia | Nos. | 1.0 | 0.0000871197 |
| b | 16mm dia | Nos. | 1.0 | 0.0001114321 |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| c | 20mm dia | Nos. | 1.0 | 0.0001397967 |
| d | 25mm dia | Nos. | 1.0 | 0.0002289424 |
| e | 28mm dia | Nos. | 1.0 | 0.0002856715 |
| f | 32mm dia | Nos. | 1.0 | 0.0003727911 |
| 500 | WATER PROOFING WORKS | | | |
| | 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 for the following: | | | |
| A502 | Providing and laying topping plaster with cement mortar 1:4 (1 cement : 4 sand) and thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete. | SQM | 10.0 | 0.0026824753 |
| A506 | Providing and applying PU based water proofing treatment with one coat of polymerised mastic over the RCC roof to achieve smooth surface as 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 (ASTM C 836 and ASTM C 898), 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 | 1422.0 | 3.2331181640 |
| 507 | Providing and laying wearing course consisting of 25mm 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 RMC as per Scope of work) | SQM | 1422.0 | 1.3672783156 |
| 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 filled up with (silicon/elastomeric) joint sealant, 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) | SQM | 160.0 | 0.2439451934 |
| B511 | Providing and applying min two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm) with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete. | SQM | 2938.0 | 0.9520437038 |
| 513 | Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete. | KG | 10.0 | 0.0031079434 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A518 | Providing and applying waterproofing treatment (two component transparent polyamide cured epoxy sealer coating, having solid by volume minimum 40%+ 2%, of minimum 50 micron DFT & sealer coat shall be followed with the application of epoxy phenolic coating, solid by volume minimum 63%, of minimum 400 micron DFT for the concrete surfaces of underground water retaining structure including surface preparation etc. all complete as per specification. | SQM | 50.0 | 0.0252262082 |
| A519 | Providing and applying waterproofing treatment with minimum 400 micron food grade epoxy coating complying to FDA title 21, Part 175.300 for the internal concrete surfaces of water retaining structure including surface preparation etc. all complete as per specification. | SQM | 50.0 | 0.0641950372 |
| A520 | Providing and fixing lining on internal surfaces of sumps with replaceable chlorobutyl/bromobutyl rubber lining of minimum 5 mm thickness or with vinly ester based flake glass lining of minimum 3 mm thickness etc. all complete as per specification. | SQM | 400.0 | 2.3630338050 |
| A521 | Providing and fixing acrylic based polymer modified cementitious composite coating system etc. all complete as per specification. | SQM | 10.0 | 0.0068480109 |
| A522 | Providing and fixing minimum two coats acrylic based polymer modified cementitious composite coating system including mixing of fine silica/quartz sand of 0.6 mm nominal size for better abrasion resistance and total nominal thickness of such coating shall be minimum 1.5 mm etc. all complete as per specification. | SQM | 10.0 | 0.0071904115 |
| B522 | Providing and fixing waterproofing treatment to be provided on sunken portion of all vertical and horizontal surfaces of depressed portions of false floor, toilets, W.C., kitchen, Pantry and the like consisting of : (i) Ist course of applying cement slurry @ 4.4 kg/sq.m mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface. (ii) IInd course of 20 mm cement plaster 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface. (iii) IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sq.m of area. (iv) IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sq.m) etc. all complete. | SQM | 10.0 | 0.0124763465 |
| | 600 JOINTS AND FILLERS | | | |
| | 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 for the following: | | | |
| 601 | Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete. | | | |
| a | 12 mm wide joints. | SQM | 10.0 | 0.0130679498 |
| b | 20 mm wide joints. | SQM | 15.0 | 0.0309173510 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| c | 25 mm wide joints | SQM | 20.0 | 0.0506793328 |
| d | 50 mm wide joints | SQM | 25.0 | 0.1223139842 |
| 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 | 10.0 | 0.0147677963 |
| b | 50mmX25mm | RM | 10.0 | 0.0284476098 |
| 604 | Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete. | | | |
| a | 10mm X 40mm | RM | 10.0 | 0.0008772748 |
| b | 12mm X 25mm | RM | 10.0 | 0.0007962332 |
| c | 20mmX25mm | RM | 10.0 | 0.0009562903 |
| Ae | 100 mm wide joints with polystyrene board of type-1 conforming to IS: 4671 with density 20 Kg/cum | SQM | 30.0 | 0.0191926649 |
| 606 | Providing and installing PVC joint sealing strips of minimum 3mm thickness and minimum width 100 mm at the construction, expansion and isolation joints from reputed manufacturers as a continuous diaphragm to contain the filler material and/ or to exclude passage of water or any other material into or out of the structure, without any longitudinal joint; and shall be procured and installed in largest practicable lengths having a minimum number of transverse joints with jointing procedure as per the manufacturer's recommendations including the material and tools required for jointing, testing, protection, etc all complete. The joints in rubber seals shall be vulcanised as needed. | RM | 10.0 | 0.0025507828 |
| 607 | Providing and installing strong and tough alkathene sheet or equivalent of about 1 mm in thickness in isolation joints and shall be fixed by an approved adhesive compound on the cleaned surface of the already set concrete as per the manufacturer's recommendations, to cover it fully including the material and tools required for jointing, testing, protection, etc all complete. | SQM | 15.0 | 0.0031869589 |
| 608 | Supplying and filling in position hot applied bitumin sealing compund (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 | 5.0 | 0.0007435562 |
| b | 12mm X 25mm | RM | 5.0 | 0.0006240199 |
| c | 20mmX25mm | RM | 5.0 | 0.0008509363 |
| 609 | 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: | | | |
| a | 25mmX25mm | RM | 5.0 | 0.0026156160 |
| b | 50mmX25mm | RM | 5.0 | 0.0046740714 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | 128.0 | 0.0652769419 |
| 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 | 5.0 | 0.0090300546 |
| b | 50mmX25mm | RM | 5.0 | 0.0175029486 |
| 613 | Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete. | Kg | 10.0 | 0.0030289279 |
| 614 | Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete. | Kg | 9.0 | 0.0085336751 |
| 615 | Providing and fixing 300 mm wide Stainless steel strips over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete. | Kg | 9.0 | 0.0078650824 |
| 700 | MS EMBEDMENTS | | | |
| | MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| 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 | 1.0 | 0.1906360623 |
| A701 | 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, manual Cleaning and providing with Primer Coat of Chlorinated Rubber based Zinc Phosphate Primer of Minimum 50 Micron Dry Film Thickness (DFT). etc. all complete. | MT | 1.7 | 0.4045087628 |
| 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 | 0.5 | 0.1189730464 |
| A703 | Same as above items 701, A701 & 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 | 31.0 | 1.3452694569 |
| 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 | 6.8 | 0.2901793972 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 704 | Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete. | | | |
| a | MS pipes of all diameters | Kg | 20.0 | 0.0038251611 |
| b | PVC pipes / conduits of all diameters | Kg | 15.0 | 0.0101605842 |
| c | UPVC pipes / conduits of all diameters | Kg | 15.0 | 0.0105982086 |
| d | Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide: | | | |
| i | 8mm Dia | EACH | 10.0 | 0.0011426858 |
| ii | 10mm Dia | EACH | 10.0 | 0.0013290814 |
| iii | 12mm Dia | EACH | 10.0 | 0.0014871124 |
| iv | 14mm Dia | EACH | | |
| e | Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel: | | | |
| i | HST M8 | EACH | 1.0 | 0.0002714892 |
| ii | HST M10 | EACH | 1.0 | 0.0003869734 |
| iii | HST M12 | EACH | 1.0 | 0.0006179418 |
| iv | HST M16 | EACH | 1.0 | 0.0011102692 |
| v | HST M20 | EACH | 1.0 | 0.0022691634 |
| vi | HST M24 | EACH | 1.0 | 0.0029863811 |
| f | Chemical Expansion fasteners (galvanised)of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc: | | | |
| i | HAS-E5.8 M8 | EACH | 1.0 | 0.0006321241 |
| ii | HAS-E5.8 M10 | EACH | 1.0 | 0.0007496343 |
| iii | HAS-E5.8 M12 | EACH | 1.0 | 0.0009218476 |
| iv | HAS-E5.8 M16 | EACH | 1.0 | 0.0014668520 |
| v | HAS-E5.8 M20 | EACH | 1.0 | 0.0023643872 |
| vi | HAS-E5.8 M24 | EACH | 1.0 | 0.0031768287 |
| 706 | Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete. | SQM | 10.0 | 0.0327225515 |
| 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 | 0.5 | 0.0793113122 |
| 800 | GROUTING | | | |
| | 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 for the following: | | | |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 801 | Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing. | SQM | 5.0 | 0.0069513389 |
| 802 | Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement : 1 sand) using non shrink admixture etc. all complete. | CUM | 0.5 | 0.0273697572 |
| 803 | Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). | CUM | 5.0 | 0.2080154225 |
| 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 | 5.0 | 0.8478364277 |
| 805 | Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor). | CUM | 5.0 | 1.0018639962 |
| 806 | Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout. | Kg | 4.0 | 0.0197194350 |
| 807 | Providing on the outer surface of walls, frames, rafts and roof slabs coming in contact with earth, Polymer modified cementitious coating in two layers as specified and as per manufacturer's specifications shall be provided directly on the concrete surface : 50 mm thick P. C. C. (1 : 2 : 4 with 10 mm nominal size stone aggregates) shall be provided under the raft i.e. over the lean concrete, followed by polymer modified cementitious coating in two layers (slurry mix application) as per manufacturer's specification. 50 mm thick P. C. C. (1 : 2 : 4) with 10 mm nominal size stone aggregates shall then be laid over the polymer modified cementitious coating before laying the raft. | SQM | 100.0 | 0.2145493974 |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 808 | Providing Chemical Injection Grouting with Minimum, 12 mm dia (NB) threaded nozzle of suitable length over the surface and along the construction joint line in a grid pattern at a spacing not exceeding 1.5m c/c before concreting operation After the nozzles are fully set, neat cement slurry admixed with water soluble non-shrink polymer / monomer based chemical shall be injected through the net - work of nozzles with low pressure grout pumps at a pressure of about 2.0 Kg/Sqcm. Cement slurry shall be prepared by mixing cement with non-shrink polymer/monomer @ 500 gm/50 kg bag of cement and water, ensuring that Water: Cement ratio does not exceed 2 (by weight). Wetter the structure, lesser should be the water cement ratio. The property of the polymer/monomer should be such that when it is mixed with water @ 0.5% by weight of water, the viscosity of the resultant solution (water and polymer/monomer) should not be more than 1.2 centipoises. Plasticizing agent shall be added wherever required. The grouting shall be started at very low pressure and increased gradually to a required pressure. The grouting shall continue, till the hole refuses to take any further grout, even at an increased pressure. Applied pressure shall not be more than the designed strength of the concrete. After completion of grouting operation, the nozzles shall be sealed properly to the satisfaction of the Engineer | SQM | 100.0 | 0.1431234280 |
| | | | | |
| | | | | |
| 900 | DOORS, WINDOWS, VENTILATORS, LOUVERS | | | |
| | 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 for the following: | | | |
| A903 | Providing, fitting and fixing factory made pre-laminated solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partial 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 anodised aluminium color dyed), finish synthetic paint 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) | SQM | 2.6 | 0.0286542658 |
| A904 | Providing and fixing single or double steel door shutters with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Side, top | SQM | 59.5 | 0.8112866890 |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | and bottom edges of shutters shall be reinforced by continuous pressed steel channel with minimum 18G. | | | |
| 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/INDAL or equivalent make having minimum 2mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float/toughened glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) | KG | 456.8 | 0.5532220317 |
| 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, vision panel of minimum 11mm thick inter layered fire resistant glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs. | SQM | 10.0 | 0.2293556885 |
| 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 | 10.0 | 0.0534935006 |
| b | fixed type | SQM | 10.0 | 0.0351943188 |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A909 | Providing and fixing anodised aluminium work of INDAL, Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections(of minimum 2mm wall thickness) 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 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 measured. | Kg | 300.0 | 0.3386483218 |
| 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 | 2.0 | 0.0073565466 |
| b | Floor mounted Hydraulic door closers as per IS 6315 | EACH | 2.0 | 0.0126384296 |
| 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 | 100.0 | 0.0305465859 |
| 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 | | |
| b | Mechanically Operated | SQM | 77.0 | 0.6366765930 |
| c | Electrically operated | SQM | 116.0 | 1.0321715095 |
| 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. | | | |
| Aa | 6 mm thick ground glass | SQM | 10.0 | 0.0534752663 |
| Ad | 6 mm thick laminated glass | SQM | 10.0 | 0.0399494317 |
| Ae | 3mm thick Polycarbonate sheet fire retardant and ultra violet resistant | SQM | 50.0 | 0.2023364360 |
| Ah | 6 mm thick clear toughened glass | SQM | 91.0 | 0.4382159692 |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| AAh | 6 mm thick wired glass | SQM | 20.0 | 0.0590995498 |
| i | Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured) | SQM | 5.0 | 0.0373257115 |
| Ai | Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 24 mm thick air gap for thermal insulation (only single elevation area to be measured) | SQM | 10.0 | 0.0896947607 |
| e | 6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges. | SQM | 15.0 | 0.0885277623 |
| 916 | Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete. | RM | 20.0 | 0.0106772241 |
| 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 | 10.0 | 0.0354860684 |
| 918 | Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete. | SQM | 5.0 | 0.0357514794 |
| 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 | 5.0 | 0.0496561833 |
| A920 | Providing and fixing of welded wire fabric of 1.6mm thick wire as per IS: 4948 and 12mm x 30mm mesh size. In conveyor gallery Windows. | SQM | | |
| A923 | Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment). | KG | 10.0 | 0.0112890878 |
| 1000 | BRICKWORK | | | |
| | 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 for the following: | | | |
| 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 | 20.0 | 0.1740103885 |
| c | Using burnt clay bricks of class designation 7.5 of nominal dimension | CUM | | |
| | | | | |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
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| ST NO | Item Description | UNIT | Qty | Weightage |
| 1002 | Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting. | | | |
| a | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2 (including cost of cement for brick making) | CUM | 471.0 | 5.0465302081 |
| c | Using burnt clay bricks of class designation 7.5 of nominal dimension | CUM | | |
| A1002 | Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 345mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting. | | | |
| d | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making) | CUM | 95.6 | 1.0243064272 |
| 1003 | Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. | | | |
| a | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making) | SQM | 95.0 | 0.1293625730 |
| c | Using burnt clay bricks of class designation 7.5 of nominal dimension | SQM | | |
| 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 | 5.0 | 0.0127701221 |
| 1006 | Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately) | CUM | 4.0 | 0.0372608783 |
| 1007 | Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer. | SQM | 4.0 | 0.0011953629 |
| 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 | 5.0 | 0.0144760467 |
| 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 | 5.0 | 0.0036347135 |
| 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 | 5.0 | 0.0077293378 |
| 1011 | Providing and filling brick bats in soak pits all complete. | CUM | 5.0 | 0.0105556618 |
| 1100 | DAMP PROOF COURSE | | | |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| | DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| A1101 | Providing Damp Proof Course of following thickness with M20 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 etc. all complete as per specification. | | | |
| b | 50mm thick | SQM | 46.0 | 0.0448119246 |
| 1200 | CEMENT MORTAR PLASTER | | | |
| | 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 for the following: | | | |
| A1201 | Providing 18mm thick plaster consisting first (base) layer of 12mm thick plaster in cement sand mortar 1:6 and second (finish) layer of 6mm thick plaster in cement sand mortar 1:4 including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete as per specification. | SQM | 1926.0 | 1.1057126634 |
| 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 | 2740.0 | 1.0874540023 |
| A1202 | Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on walls finished to a smooth finish as per specification all complete. | SQM | 1094.0 | 0.4326139721 |
| 1203 | Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete. | SQM | 80.0 | 0.0302649666 |
| 1204 | Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete. | SQM | 1690.0 | 0.6519306386 |
| 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 | 280.0 | 0.1001835632 |
| 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 battons, 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 | | |
| 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 enginner in charge (chicken wire mesh to be paid separately) | SQM | | |
| 1209 | Ruled pointing in masonry in Cement Mortar 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete. | SQM | | |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| A1210 | Providing drip course in cement mortar (1:3) in parapet, chajjas, window/door heads, architectural facias, fins etc. all complete. | RM | 204.0 | 0.0170815325 |
| 1300 | FINISHES TO CONCRETE / PLASTERED SURFACES | | | |
| | FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| 1301 | Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications. | SQM | 10.0 | 0.0007617906 |
| 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 | 1805.0 | 0.3097104106 |
| 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 | 1485.0 | 0.3770458078 |
| 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 | 178.0 | 0.1430666989 |
| 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 | 5.0 | 0.0024069340 |
| 1308 | Providing and applying 2 or more coats of Chlorinated Rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying chlorinated rubber zinc phosphate 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, inclusive of intermediate coat of Titanium dioxide / micaceous iron oxide complete as per specifications. | SQM | 5.0 | 0.0020787157 |
| 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 separately. | SQM | 10.0 | 0.0062098087 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| 1314 | Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film nominal thickness of 2.5 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge. | SQM | 1660.0 | 2.3902090625 |
| 1316 | Providing and applying 2 mm thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer. | SQM | 10.0 | 0.0018801639 |
| 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 | 550.0 | 0.1119001451 |
| A1317 | Providing and applying 2 mm thick polymer based water resistant putty on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer. | SQM | 786.0 | 0.1803620199 |
| 1319 | Providing and applying two or more coats of Acrylic based weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification. | SQM | 5.0 | 0.0017545495 |
| A1319 | Providing and applying two or more coats of Acrylic smooth exterior paint with silicon additives of approved brand and manufacture and required shade over suitable primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification. | SQM | 50.0 | 0.0184207441 |
| 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 | 10.0 | 0.0080129832 |
| 1400 | FLOORING AND SKIRTING | | | |
| | 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 for the following: (BHEL will not supply RMC for this item) | | | |

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|--|--|------|--------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 1401 | Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): | SQM | 450.0 | 0.4733738193 |
| A1401 | Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron paricles in flooring. Under layer of 38mm thick M20 grade cement concrete mix (with stone chips of size 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips): | SQM | 1800.0 | 2.4122584420 |
| 1402 | Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 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 1:2:4 (1 cement: 2 sand : 4 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). | SQM | 10.0 | 0.0100349698 |
| 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). | | | |
| b | 80mm | SQM | 10.0 | 0.0195958466 |
| 1406 | Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. | SQM | 200.0 | 0.6414803309 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| 1412 | Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete. | SQM | 50.0 | 0.6428560112 |
| A1416 | Providing and laying vitrified ceramic tiles of mirror polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 18mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm , 3 mm groove joint pointed neatly with 3x4mm stainless epoxy grout SP-100 of laticrete or approved equivalent etc. all complete for following | | | |
| b | 10mm thick tiles In flooring | SQM | 50.0 | 0.1824164232 |
| 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 | | | |
| b | 10mm thick tiles In flooring | SQM | 10.0 | 0.0318391987 |
| d | 10mm thick tiles In skirting and dado upto specific height | SQM | 10.0 | 0.0320134380 |
| A1419 | Providing and laying granite stone slab of 18mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete. | SQM | 5.0 | 0.0725301605 |
| 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,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. | SQM | 15.0 | 0.0501707971 |
| A1422 | Providing & fixing 12mm thick Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832, 6mm ythick pointing of joints of tiles with acid/alkali resistant epox/furane mortar up to a depth of 20mm and bituminastic end sealing and including preparation of surface, application of bitumen primer, curing etc. all complete as per specification. The tiles should be abrasion resistant & durable. | SQM | 5.0 | 0.0164088877 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| A1422 | Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832, 6mm thick pointing of joints of tiles with acid/alkali resistant epoxy/furane mortar up to a depth of 20mm and bituminastic end sealing and including preparation of surface, application of bitumen primer, curing etc. all complete as per specification. The tiles should be abrasion resistant & durable. | | | |
| a | 12mm thick Acid / Alkali resistant (Chemical resistant) tiles in Dado | SQM | 47.0 | 0.1542403025 |
| b | 20mm thick Acid / Alkali resistant (Chemical resistant) tiles in Flooring | SQM | 34.0 | 0.2324535017 |
| 1428 | Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade, as per IS:3462 and laying as per IS:5318 all complete. | SQM | 10.0 | 0.0076503222 |
| 1429 | Providing and fixing removable type flooring system consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification. | SQM | | |
| 1600 | FALSE CEILING | | | |
| | FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge for the following: | | | |
| A1602 | Providing, fixing and laying light weight mineral fibre 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 backed with 0.05 mm thick aluminium foil & 24 G x 25 mm mesh wire netting and shall be fixed to ceiling with 24 G wire ties and suitable fixing arrangements. 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. | SQM | 207.0 | 0.7895391892 |

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| ST NO | Item Description | UNIT | Qty | Weightage |
| A1603 | Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 backed with 0.05 mm thick aluminium foil & 24 G x 25 mm mesh wire netting and shall be fixed to ceiling with 24 G wire ties and suitable fixing arrangements. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No A2301) | SQM | 1.0 | 0.0048969356 |
| A1604 | Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamel finish of approved make in LINEAR and SQUARE type with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (as per IS:8183)backed with 0.05 mm thick aluminium foil & 24 G x 25 mm mesh wire netting and shall be fixed to ceiling with 24 G wire ties and suitable fixing arrangements.. 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) | SQM | 1.0 | 0.0045869517 |
| 1700 | RAIN WATER DOWN TAKE PIPES | | | |
| | 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 for the following: | | | |
| A1704 | Providing and fixing galvanised MS down take pipes conforming to IS: 1239/IS: 3589 of 150 mm dia- Medium quality as per IS:1239(part-I) all complete as per specification. (Galvanising shall be as per IS: 4736. The minimum mass of zinc coating shall not be less than 400 gms/sq.m. as per IS:6745. The zinc coating shall be smooth and shall be subjected to testing as per IS: 2633, for uniformity of coating. The zinc coating shall be free from all defects as per IS: 2629. All rain water down comers shall be provided with roof drain heads and complete with shoes bends, junctions, sockets, adapters, brackets and finished with anticorrosive painting over a coat or primer. Downcomers shall be provided with 45 x 45 cm size Khurras having minimum thickness of 30 mm with M-15 concrete over PVC sheet of 1mx1mx400micron and finished with 12 mm thick cement sand plaster 1:3.The rainwater down comers shall be provided with suitable C.I. grating at inlet point etc. all complete as specification. | RM | 107.0 | 0.4925300155 |
| 1705 | Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete. | RM | 10.0 | 0.0095851892 |

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| 1706 | Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete. | RM | 10.0 | 0.0147130933 |
| 1710 | Providing and fixing galvanised ERW steel down take pipes of medium duty as per specification of following diameters. | | | |
| C | 273mm OD and 4mm thick | RM | 10.0 | 0.0847390699 |
| 1800 | MISCELLANEOUS WORKS | | | |
| | 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 for the following: | | | |
| A1801 | Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm (complying IRC specification) in layers not exceeding 200 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum/non-expansive soil 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 | 1399.0 | 4.9942057318 |
| B1801 | Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm compacted thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum and compacting to 90 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill. | CUM | 20.0 | 0.0749674851 |
| 1802 | Supply and laying approved quality Stone aggregate 40mm size in transformer yards. | CUM | 20.0 | 0.1032692201 |
| 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 | 10.0 | 0.0045160403 |
| 1807 | Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment). | SQM | 1296.0 | 0.4819034423 |
| 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 | 10.0 | 0.2018116919 |
| 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 | 10.0 | 0.2202729569 |
| 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). | EACH | 10.0 | 0.1650512452 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|---------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 1811 | Construction of below ground earthing system earth electrodes as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items) | EACH | 10.0 | 0.0126688202 |
| 1812 | Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.) | EACH | 10.0 | 0.0084465555 |
| 1813 | Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete. | EACH | 10.0 | 0.6908852853 |
| 1814 | Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork. | EACH | 10.0 | 0.4027744736 |
| 1815 | Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete. | Kg | 10.0 | 0.0020179346 |
| 1818 | Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, suface preparation, curing, staging, compatible paintings etc. all complete. | CUM | 1.0 | 0.2002820327 |
| 1819 | Supply & fixing expanded metal steel sheet conforming to IS:412. Size of mesh shall be 10mmX40mm with strands of 2.5mm width and 1mm thickness to the structural steel for facilitating fireproofing works. | SQM | 10.0 | 0.0068257245 |
| 1821 | Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust supression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling). | TANK-HR | | |
| 1822 | Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification. | CUM | 2.0 | 0.0400547857 |
| 1823 | Providing and laying cinder filling in the toilets,roads,etc complete as directed by engineer in charge. | CUM | 2.0 | 0.0095142779 |
| 1824 | Disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other civil waste, electrical waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as and when directed by BHEL. | | | |
| a | Steel scrap / metal scrap | MT | 1.0 | 0.0014324094 |
| b | Debris & Other waste materials. | CUM | 1.0 | 0.0002714892 |
| 1832 | Providing and fixing sliding layer of bitumen paper or craft paper over the screed layer for water retaining structures to destroy the bond between the screed and the base slab concrete of the water retaining structure etc all complete. | SQM | 20.0 | 0.0009036133 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A1839 | Providing bore wells in ground with perforated/non-perforated PVC pipe of standard approved make for rain water harvesting by means of mechanical equipment including pipe, drilling inside earth, weathered rock, sandstone, shale etc. upto required depth at locations shown in drawing etc all complete. Depth of borewell shall vary from 6m to 15m. Payment shall be made cumulative diameterwise as per actual length of bore well and diameter as mentioned below. | | | |
| (a) | 200 mm diameter | RM | 4.0 | 0.0037198071 |
| (b) | 300 mm diameter | RM | 4.0 | 0.0046517849 |
| A1840 | Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe. | Cum | 1.0 | 0.0065441051 |
| A1841 | Supply & packing uniformly downgraded 40mm size gravel at all depth in the pit/well dug for rain water harvesting. | Cum | 1.0 | 0.0065441051 |
| A1842 | Supply & packing uniformly downgraded 40mm size pebbles at all depth in the pit/well dug for rain water harvesting. | Cum | 1.0 | 0.0065441051 |
| A1843 | Supply & laying coarse sand layer at all depth in the pit/well dug for rain water harvesting. | Cum | 1.0 | 0.0054034453 |
| A1844 | Supply and fixing of bar screen of 5 mm square M. S. bar at inlet point of Rain water collecting tanks with 50 mm X 50 mm opening etc all complete | SQM | 2.0 | 0.0005429784 |
| A1845 | Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete. | RM | 8.0 | 0.0143484063 |
| A1846 | Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification. | RM | 8.0 | 0.0143484063 |
| A1847 | Supply & fixing Netlon jali/ PVT net in the well dug for rain water | SQM | 8.0 | 0.0025062099 |
| A1849 | Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete as per specification. | SQM | 100.0 | 0.1748977934 |
| A1850 | Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete as per specification. | SQM | 100.0 | 0.1489320811 |
| 2000 | FENCING AND GATES | | | |
| | 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 for the following: | | | |
| 2001 | Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing of height of 600 mm confirming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, | RM | 20.0 | 0.1047036556 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| | accessories etc. all complete. (Structural post shall be paid separately under item 2007) | | | |
| 2003 | Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2007) | RM | 4.0 | 0.0195269613 |
| 2004 | Supplying and erecting in position 2.4 m high gavanised chain linked fencing conforming to IS 2761 of 10G hot dip galvanised steel wires woven in the form of zigzag mesh giving an opening size of 50 mm square. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2007) | RM | 4.0 | 0.0257003013 |
| 2005 | Supplying and fixing 600mm high G.I. barbed wire fencing on top of boundary wall consisting of min. 6 nos. strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply with barbs of 16G spaced at 100mm including GI clips, anchors, accessories etc. all complete. (Structural post shall be paid separately under ST No. 2007/ 2008 as the case may be) Measurement shall be for per running meter of fencing. | RM | 4.0 | 0.0005672908 |
| 2006 | Supplying and fixing 600mm high concertina on top of boundary wall including GI tension wires, clips, anchors, accessories etc. all complete. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. (Structural post shall be separately under ST No. 2007) | RM | 45.0 | 0.0225173945 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 2007 | Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts. | MT | 1.0 | 0.1794158598 |
| 2008 | Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete. | MT | 0.5 | 0.0846134555 |
| A2008 | Supply, fabrication and fixing of pre-cast RCC of minimum M20 grade 3M HIGH FENCE POST including making arrangements for fixing of chain link fencing (covered in item no. 2001 above), painting etc. all complete as per specification. | Each | 1.0 | 0.0021901479 |
| 2009 | Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. | MT | 0.5 | 0.1002848651 |
| A2009 | Supply, fabrication and installing in position and testing STEEL Gates, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, Aldrops with locking arrangement, tempered steel pivot, guide track Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete as per specification. | MT | 0.5 | 0.1002848651 |
| 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 | 1.0 | 0.1915376495 |
| 2100 | WATER SUPPLY | | | |
| | 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 for the following: | | | |
| 2101 | Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore. | EACH | 8.0 | 0.0113681033 |
| 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. | EACH | 10.0 | 0.0115544989 |
| b | 50mm nominal bore. | EACH | 5.0 | 0.0102395997 |
| 2104 | Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal 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 | 30.0 | 0.0242233191 |
| b | 20 mm nominal bore. | RM | 80.0 | 0.0730954253 |
| c | 25 mm nominal bore. | RM | 10.0 | 0.0110236767 |
| d | 50 mm nominal bore. | RM | 2.0 | 0.0032396359 |

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Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 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 | 5.0 | 0.0031606204 |
| b | 20 mm nominal bore. | RM | 5.0 | 0.0036914426 |
| c | 25 mm nominal bore. | RM | 5.0 | 0.0046355766 |
| d | 50 mm nominal bore. | RM | 70.0 | 0.1011459316 |
| A2106 | Providing and fixing wall to wall mirror of height 450mm & 6 mm thk float glass from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete. | EACH | 3.0 | 0.0083594358 |
| A2108 | Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) all complete. | EACH | 3.0 | 0.0049800032 |
| 2110 | Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete. | EACH | 3.0 | 0.0029640947 |
| 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. | EACH | 3.0 | 0.0044552592 |
| 2112 | Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete. | EACH | 3.0 | 0.0020483252 |
| 2113 | Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete. | EACH | 1.0 | 0.0003302443 |
| A2114 | Providing & fixing in position High density polyethylene (cylindrical/vertical) molded seamless type tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105. | | | |
| a | 500 litres capacity | EACH | 2.0 | 0.0144395780 |
| b | 1000 litres capacity | EACH | 2.0 | 0.0288832081 |
| 2116 | Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete. | EACH | 2.0 | 0.0006341501 |
| 2117 | Providing and fixing metal storing cabinets all complete. | EACH | 2.0 | 0.0094068978 |
| 2118 | Providing Minimum 600 mm long porcelain tray etc all complete.. | EACH | 1.0 | 0.0025082359 |
| 2119 | Providing and fixing Recessed porcelain soap tray in shower area etc all complete. | EACH | 1.0 | 0.0007840770 |
| 2120 | Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete. | EACH | 1.0 | 0.0031363080 |
| A2121 | Providing and fixing Electric operated hand dryer with photo voltaic control including fittings, cutting and making good the wall where required etc. all complete. | EACH | 1.0 | 0.0452819656 |
| 2200 | SANITARY WORKS | | | |
| | 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 for the following: | | | |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|---|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A2201 | Supply and fixing glazed vitreous china Wash Basin of (oval shape) approved make (with photovoltaic control) 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 | 3.0 | 0.0815581891 |
| b | Colored | EACH | 1.0 | 0.0279552824 |
| 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 necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete. | EACH | 1.0 | 0.0124540601 |
| A2203 | Providing and fixing stainless steel kitchen sink of size 600x400x200mm conforming to IS: 13983 including all fittings etc. all complete. | EACH | 1.0 | 0.0124743205 |
| 2204 | Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete. | | | |
| b | Wall mounted | EACH | 1.0 | 0.0272866896 |
| A2204 | Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat, flush valve and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete. | | | |
| b | Wall mounted | EACH | 1.0 | 0.0272866896 |
| 2205 | Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P connections etc all complete. | EACH | 1.0 | 0.0134589753 |
| A2206 | Providing and fixing white flat back glazed vitreous china lipped urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings, with provision of squatting urinal for ladies toilet etc. all complete. | EACH | 1.0 | 0.0170308816 |
| 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 | 10.0 | 0.0061632098 |
| b | 110mm dia pipes | RM | 10.0 | 0.0087909821 |
| c | 160mm dia pipes | RM | 10.0 | 0.0120063055 |
| d | 200mm dia pipes | RM | 10.0 | 0.0145814007 |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A2207 | Supply, laying and jointing CPVC pipes as per IS:15778 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 | 50.0 | 0.0323517865 |
| b | 110mm dia pipes | RM | 20.0 | 0.0184632910 |
| c | 160mm dia pipes | RM | 20.0 | 0.0252120260 |
| d | 200mm dia pipes | RM | 20.0 | 0.0306215494 |
| 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 | 25.0 | 0.0507320098 |
| b | 300mm dia | RM | 50.0 | 0.1459922989 |
| c | 450mm dia | RM | 25.0 | 0.1304910765 |
| d | 600mm dia | RM | 25.0 | 0.1694518013 |
| 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 | 20.0 | 0.0243610897 |
| b | 250mm dia | RM | 20.0 | 0.0368597226 |
| c | 300mm dia | RM | 8.0 | 0.0166317519 |
| d | 450mm dia | RM | 8.0 | 0.0232285340 |
| 2210 | 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 complete for following. | | | |
| a | 150mm dia | RM | 10.0 | 0.0146198955 |
| b | 250mm dia | RM | 10.0 | 0.0223228947 |
| c | 400mm dia | RM | 15.0 | 0.0612309425 |
| 2211 | Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete. | EACH | 5.0 | 0.1400094065 |
| 2212 | Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete. | EACH | 10.0 | 0.2929023933 |
| 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: | | 10.0 | |
| a | 100x100mm P or S Type. | EACH | 2.0 | 0.0076543743 |
| b | 150x100mm P or S Type. | EACH | 2.0 | 0.0079420718 |
| c | 150x150mm P or S Type. | EACH | 4.0 | 0.0170835586 |
| 2214 | Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete. | EACH | 4.0 | 0.0103510319 |
| 2215 | Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete. | EACH | 4.0 | 0.0099985011 |

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| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|-------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 2216 | Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete. | EACH | 3.0 | 0.2631804051 |
| 2217 | Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete. | EACH | 5.0 | 0.5471094728 |
| 2218 | Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete. | EACH | 5.0 | 0.0163359503 |
| 2219 | Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification. | EACH | 1.0 | 0.0625964926 |
| 2221 | Providing, laying spun CI pipes with conforming to IS 1536 complete for following.(Excavation,backfilling,concrete to be paid seperately) | | 2.0 | |
| c | 150mm dia | RM | 2.0 | 0.0166114916 |
| d | 200mm dia | RM | 2.0 | 0.0254612287 |
| f | 300mm dia | RM | 30.0 | 0.5793822438 |
| 2400 | ROAD WORKS | | | |
| | ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation etc. as per specification drawing, relevant IRC & IS codes and as directed by the Engineer-in-charge for the following: | | | |
| 2401 | Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete. | CUM | 140.0 | 0.0245434332 |
| 2402 | Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete. | CUM | 10.0 | 0.0074375882 |
| 2403 | Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete. | CUM | | |
| 2405 | Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -1), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete. | CUM | 200.0 | 0.9115837103 |
| A2405 | Construction of granular sub-base by providing close graded material conforming to specification,mixing in a mechanical mix plant at OMC,carriage of mixed material to work site,for all leads and lifts,spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density,complete as per specifications and directions of Engineer-in-Charge. CUM 160 | CUM | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| 2406 | Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone(IRC 19 -grading -1) screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete. | CUM | 20.0 | 0.1133102681 |
| 2413 | Supplying and laying 400mmx150mmx350mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. | RM | 90.0 | 0.0654998061 |
| A2414 | Supply and laying 200 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. | RM | 25.0 | 0.0507320098 |
| B2414 | Supply and laying 600 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. | RM | 50.0 | 0.3389036027 |
| A2415 | Supply and laying 150mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment terms - a) On receipt of materials at site - 50%; b) On completion of erection & fixing - 50%. | RM | 50.0 | 0.0572477504 |
| 2416 | Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadem course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete. | SQM | 10.0 | 0.0026176420 |
| | Providing and placing concrete work in road 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: | | | |
| 2418 | Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc (RMC Shall be provided free of Cost as per TCC). | CUM | 20.0 | 0.1575083030 |
| A2419 | Providing and laying (using fully mechanised paver)cement concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required), provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar) (RMC Shall be supplied free of Cost as per TCC) | CUM | | |
| A2420 | Supplying and filling sand for preparation of road sub-base/ sub-grade 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 | 5.0 | 0.0217535779 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI : Bill of Quantities and % Weightage of Individual Items

| % weightage of individual items of Schedule of quantity for PKG-B | | | | |
|--|--|------|------------|--------------|
| ST NO | Item Description | UNIT | Qty | Weightage |
| A2421 | Providing & laying dry lean cement concrete of grade M15 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (RMC Shall be Supplied free of cost as per TCC) | CUM | 2.0 | 0.0023704653 |
| B2421 | Providing & laying dry lean cement concrete of grade M10 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (RMC Shall be supplied free of Cost as per TCC) | CUM | 10.0 | 0.0118543526 |
| A2423 | Providing and fixing separation Membrane of impermeable plastic sheeting of 125 microns thick laid flat without creases etc. all complete | SQM | 360.0 | 0.0202036582 |
| | REINFORCEMENT | | | |
| 2425 | Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer. (BHEL will supply MS Dowel bar free of Cost as per TCC) | MT | 2.0 | 0.3388549777 |
| 2426 | Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer. (BHEL will supply TMT free of Cost as per TCC) | MT | 10.0 | 0.2511092663 |
| 2427 | Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer. (BHEL will supply Reinforcement free of Cost as per TCC) | MT | | |
| | MISCELLANEOUS | | | |
| 2428 | Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer. | RM | 10.0 | 0.0368455404 |
| 2429 | Providing and filling in position hot applied bitumen sealing compund (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer. | RM | 200.0 | 0.0065319489 |
| 2430 | Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer. | RM | 10.0 | 0.0017525235 |
| 2431 | Providing & laying 75 mm thick precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer. | SQM | 10.0 | 0.0183721192 |
| 2432 | Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer. | SQM | 10.0 | 0.0013999928 |
| Total for PKG-B | | | 100 | |