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2012

NOTICE INVITING TENDER

(Document No PS:MSX:NIT)

TENDER NO.: BHEL/NR/SCT/NEPAL/ARUN-3/
MM/1199

NAME OF WORK: Material handling including receipt, unloading of plant materials, storage, verification, preservation, loading of materials from site stores, handing over to erection contractor/other agency of BHEL and providing Storage Facilities during the entire contract period as per specification for 4 x 225 MW Arun-3 HEP Site in Nepal.

Bharat Heavy Electricals Limited

Registered



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NOTICE INVITING E-TENDER (NIT)
BIDDER TO SUBMIT OFFERS ON PORTAL
<https://bhel.abcprocure.com>

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To

Dear Sir/Madam

Sub : NOTICE INVITING E-TENDER

Sealed offers in two part bid system are invited from reputed & experienced bidders (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-I) 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. **Salient Features of NIT**

SL NO	ISSUE	DESCRIPTION
i	TENDER NUMBER	BHEL/NR/SCT/NEPAL/ARUN-3/MM/1199
ii	Broad Scope of job	Material handling including receipt, unloading of plant materials, storage, verification, preservation, loading of materials from site stores, handing over to erection contractor/other agency of BHEL and providing Storage Facilities during the entire contract period as per specification for 4 x 225 MW Arun-3 HEP Site in Nepal.
iii	DETAILS OF TENDER DOCUMENT	
a	Volume-IA	<i>Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc</i> Applicable
b	Volume-IB	<i>Special Conditions of Contract (SCC)</i> Applicable
c	Volume-IC	<i>General Conditions of Contract (GCC)</i> Applicable
d	Volume-ID	<i>Forms and Procedures</i> Applicable
e	Volume-II	<i>Price Schedule (Absolute value).</i> Applicable
iv	Issue of Tender Documents	From BHEL website (www.bhel.com) and https://bhel.abcprocure.com Tender documents will be available at website till due date of submission Applicable
v	DUE DATE & TIME OF OFFER SUBMISSION	Date : 16/06/2020 , Time : 15:00 HRS (IST) Place : on https://bhel.abcprocure.com Applicable
vi	OPENING OF TENDER	At due date / time Date : 16/06/2020 , Time : 15:30 HRS (IST) Notes: (1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get Applicable

		<i>extended to the next working day. (2) Bidder may depute representative to witness the opening of tender. However it being an e-tender it shall be opened online</i>	
vii	EMD AMOUNT	Rs. 4,66,000/-.	Applicable
viii	COST OF TENDER	Rs 2000/-.	Applicable
ix	LAST DATE FOR SEEKING CLARIFICATION	Five days before bid submission due date. Along with soft version also, addressing to contact address given below 1) Name: G.V. RAJA SEKHAR Designation: Sr. Manager Deptt: SCT Address: BHEL-PSNR, PLOT NO. 25, SECTOR – 16A, NOIDA - 201301 Phone: (Landline) 0120-2416232 Email : gvr@bhel.in 2) Name: DESHRAJ YADAV Designation: Sr. Engineer Deptt: SCT Address: BHEL-PSNR, PLOT NO. 25, SECTOR – 16A, NOIDA - 201301 Phone: (Landline) 0120-2416261 Email : deshraj@bhel.in	Applicable
x	SCHEDULE OF Pre Bid Discussion (PBD)		Not applicable.
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)		Not 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 Corrigendums) & portal https://bhel.abcprocure.com and not in the newspapers. Bidders to keep themselves updated with all such information	
xiii	Tender submission	on portal https://bhel.abcprocure.com	

2. 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, **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. Unless specifically stated otherwise, bidder shall remit cost of tender and courier charges if applicable, in the form of Demand Draft drawn in favour of Bharat Heavy Electricals Ltd, payable at Power Sector Regional HQ at Noida issuing the Tender, along with techno-commercial offer. Bidder may also choose to deposit the Tender document cost by cash at the Cash Office as stated above against sl no iv of 1, on any working day; and in such case copy of Cash receipt is to be enclosed with the Techno Commercial offer. Sale of tender Documents shall not take place on National Holidays, holidays declared by Central or State Governments and BHEL PS HQ at Noida, Sundays and second/ last Saturdays.

As this tender is an E-Tender and no paper bids will be accepted therefore the scanned copy of the Demand Draft or the Cash Receipt issued by BHEL PSNR should be uploaded in the E procurement portal. Hard Copy of the demand draft should reach BHEL PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.

4. Unless specifically stated otherwise, tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) in the manner described in Clause no. 1.9 of General Conditions of Contract.

'One Time EMD' will not be considered for this tender. All the bidders who have 'One Time EMD' with BHEL and want to participate in this tender, would also submit the requisite amount of EMD as mentioned in Clause No. 1, Salient Features of NIT, Sl. No. (vii) above.

However, the One Time EMD can be adjusted against the EMD applicable against this tender on specific request of bidder.

For Electronic Fund Transfer the details are as below:-

a) **Name of the Beneficiary** -: Bharat Heavy Electricals Limited

b) **Bank Particulars**

i).	Bank Name :-	STATE BANK OF INDIA
ii).	Bank Telephone No.(with STD code)-:	011-23475566
iii).	Branch Address:-	CAG II BRANCH, NEW DELHI 4 th & 5 th FLOOR, REDFORT CAPITAL, PARASNATH TOWERS, BHAI VEER SINGH MARG, GOLE MARKET, NEW DELHI-110001
iv).	Bank Fax No. (with STD code) :-	011-23475566
v).	Branch Code :-	17313
vi).	9 Digit MICR Code of the Bank Branch :-	110002562
vii).	Bank Account Number :-	10813608647
viii).	Bank Account Type :-	CASH CREDIT
ix).	11 Digit IFSC Code of Beneficiary Branch:-	SBIN0017313

(Note:- In case of E-Tenders, no paper bids shall be accepted, therefore, the scanned copy of the Banker's Cheque/ Demand Draft/ Pay Order/ Details of payment made through Electronic Fund Transfer/ Fixed Deposit Receipt (FDR) / Bank Guarantee should be uploaded in the E-Procurement Portal and hard copy of the same should reach BHEL-PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.)

5. **Procedure for Submission of Tenders**: This is an E-tender floated online through our E-Procurement Site <https://bhel.abcprocure.com>. The bidder should respond by submitting their offer online only in our e-Procurement platform at <https://bhel.abcprocure.com>. Offers are invited in two-parts only.

Documents Comprising the e-Tender

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

a. Technical Tender (UN priced Tender)

All Technical details (eg. 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):

- Tender Cost and Earnest money Deposit (EMD) furnished in accordance with NIT Clause 3.0 & 4.0.
- 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 would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- iv. 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.
- v. 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.
- vi. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, same shall not be considered.

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-:

M/s AbcProcure, Ahmedabad

A-202/208, Wall Street-II, Opp. Orient Club, Nr. Gujarat College,

Ellis Bridge, Ahmedabad-380006

The contact details of the service provider are given below:

Name	Contact Nos.	e-mail ID	Role	Location
Swapnil Hamilton	+91 79 40270549	swapnil.h@eptl.in	Support Executive	HO – Ahmedabad
Hardik Oza	+91 79 40270560	Hardik.oza@eptl.in	Support Executive	HO – Ahmedabad
Ankur Bhatt	+91 79 40270590	ankur.bhatt@eptl.in	Support Executive	HO – Ahmedabad
Prashant Rajyaguru	+91 79 40270545 / 9016859416	prashant@eptl.in	Ast. Manager – Implementation & Support	HO – Ahmedabad
Dharam Rathod	+91 79 40270596 / 9374519754	dharam@eptl.in	Manager – Implementation & Support	HO – Ahmedabad
Pradip Parmar	+91 79 40270532 / 9328657215	pradip@eptl.in	Sr Manager – Implementation & Support	HO – Ahmedabad
Devang Patel	+91 79 40270576 / 99983 05442	devang@eptl.in	Sr Manager – Implementation & Support	HO – Ahmedabad

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.

1. The contact details of the DSC Certifying Authority as given below

1	GNFC	www.ncodesolutions.com
2	e-Mudhra	http://www.e-Mudhra.com
3	Safescrypt	www.safescrypt.com

Vendors are also requested to go through seller manual available on <https://bhel.abcprocure.com>.

6. **Not Used**

7. 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. 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. **Assessment of Capacity of Bidders:**

Bidder's capacity for executing the job under tender shall be assessed 'LOAD' wise and 'PERFORMANCE' wise 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 -1))

- 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

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

$$= \frac{S_T}{T_T}$$

- e) Bidders to note that the risk of non-evaluation or non-availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder.
- f) Table showing methodology for calculating 'a', 'b' and 'c' above

Sl. No.	Item Description	Details for all Regions							Total
		(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	
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

Sl. No.	Item Description	Details for all Regions							Total
		(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	
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'.

- 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	0.4
3	> 65 and ≤ 70	0.35
4	> 70 and ≤ 75	0.25
5	> 75 and < 80	0.2
6	≥ 80	NA

III. 'Assessment of Capacity of Bidder':

'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:

- 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
- For R_{BHEL} = 60, P_{Max} = '1'
- For R_{BHEL} ≥ 80, there will be no upper limit on P_{Max}

The Bidder shall be considered 'Qualified' 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)

Note: For the transition period of 1 year (i.e. for all the NITs floated between 11th May 2019 to 10th May 2020), in addition to above, 'Assessment of Capacity of Bidder' shall also be calculated considering 'performance scores' till 36 months as per Sl. no II ii).

Higher of the results obtained out of both shall be considered for 'Assessment of Capacity of Bidder'.

IV. **Explanatory note:**

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

ii). Identified Packages (Unit wise)

Table-1

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

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/LOA from BHEL.

The "FIRST TIMER" tag shall remain till completion of all the contracts against which vendors 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:
- Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages
 - Up to Steam Blowing in case of Boiler/ESP/Piping Packages
 - 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 25th of Evaluation Month or 3 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 -
- Short hold:** Evaluation shall not be applicable for this period, however Loading will be considered.
 - 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 in CL 9 above is applicable to prime bidder and Consortium partner (or Technical tie up partner) for their respective scope of work.

10. 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. For any clarification on the tender document, the bidder may seek the same over e-procurement portal as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any

other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

12. BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.
13. 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. Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
15. **NOT APPLICABLE.**
16. 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. In case BHEL decides on a 'Public Opening', the date & time of opening of the PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised 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. 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. NOT APPLICABLE.
20. On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
21. 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. The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
23. NOT APPLICABLE.
24. The bidder shall 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. The bidder may have to produce original document for verification if so decided by BHEL.
26. It may please be noted that guidelines/rules in respect of Suspension of Business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', milestone/ completion certificate, etc may undergo change from time to time and the latest one shall be followed. The abridge version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on "**supplier registration page**".

27.0 The offers of the bidders who are on the banned/ hold list as 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

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

27.1.1 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.

27.1.2 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.

28.0 **Not Applicable.**

29.0 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.

30.0 PREFERENCE TO MAKE IN INDIA:

For this procurement, Public Procurement (*Preference to Make in India*), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/ PO/ WO against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable.

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

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

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

32.0 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

for BHARAT HEAVY ELECTRICALS LTD

(SCT)

Enclosure:-

- (i) Annexure-1: Pre Qualifying criteria.
- (ii) Annexure-2: Check List.
- (iii) Other Tender documents as per this NIT.

ANNEXURE - 1**PRE QUALIFYING REQUIREMENTS**

JOB	Material handling including receipt, unloading of plant materials, storage, verification, preservation, loading of materials from site stores, handing over to erection contractor/other agency of BHEL and providing Storage Facilities during the entire contract period as per specification for 4 x 225 MW Arun-3 HEP Site in Nepal.
TENDER NO.	BHEL/NR/SCT/NEPAL/ARUN-3/MM/1199

SL NO	NAME AND DESCRIPTION OF PRE QUALIFICATION CRITERIA	
A	Submission of Integrity Pact	Not applicable
B	Assessment of Capacity of bidder to execute the work as per clause 9.0 pf NIT	Applicable – by BHEL
C	<u>Technical</u>	Applicable
C-1	Bidder should have executed similar work for any one of the following in the last seven years from latest date of bid submission.	
C-1.1	One (1) work of value not less than INR 1.86 Crs. (NPR 2.98 Crs.)	
	OR	
C-1.2	Two (2) works each of value not less than INR 1.16 Crs. (NPR 1.86 Crs.)	
	OR	
C-1.3	Three (3) works each of value not less than INR 0.93 Crs. (NPR 1.49 Crs.)	
D	<u>Financial</u>	Applicable
D-1	<p><u>TURNOVER:</u></p> <p>Bidders must have achieved an average annual financial turnover (Audited) of INR 0.7 Crs. (NPR 1.12 Crs.) or more over last three Financial Years (FY) i.e. (2016-2017, 2017-2018, 2018- 2019). Bidder shall submit audited accounts (balance sheets and profit & loss account) in support of this.</p> <p>Bidder shall submit audited accounts in INR or in equivalent NPR (balance sheets and profit and loss account) in English language signed by the directors and Chartered/Certified Accountant (with membership number mentioned in the document) in support of this.</p> <p>Whenever financial year does not end on 31st March, preceding accounting years comprising of 12 months period for 3 previous accounting years ending on or before 31st March 2019 shall be considered.</p> <p>In case audited financial statements have not been submitted for all the three years as indicated above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e. total divided by three</p> <p>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.</p>	
D-2	<u>Net worth:</u> Net worth (Only in case of companies) of the Bidder based on the latest Audited Accounts as furnished for 'D-1' above should be positive.	

D-3	Net Worth = Paid up share capital* + Reserves. (*: Share Capital OR Partnership Capital OR Proprietor Capital as the case may be.) Profit: Bidder should have earned profit in any one of the three financial years as applicable in the last three financial years defined in 'D-1' above. PROFIT shall be PBT earned during any one year of last three financial years as in 'D-1' above	
D-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.	
E	Approval of Customer	Not Applicable
F	Consortium Criteria	Not Applicable

Explanatory Notes for QR 'C'

- Completion date for achievement of the technical criteria specified at Sl. No. 'C-1' 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.
- For Sl. No. 'C-1', 'Executed' means the bidder should have achieved this criteria, even if the contract has not been completed or closed. Actual executed value shall be considered, irrespective of completion status of contract (s) under consideration. For evaluation of PQR, the credentials of the Bidder alone, and not that of the Group Company shall be considered.
- For Sl. No 'C-1' above the word 'Similar Works' means "Material Handling work / Material Management work / Material Handling & Material Management work or Erection, Testing & Commissioning work of Mechanical Work /Electrical Work /Electro-Mechanical Work in any power plant /industry/Infrastructure project or Any works involving general nature structural/architectural/civil works".
- Material handling work of Cement bags, Sacks, Packages, Coal, sand and all kind of minerals shall not be considered.
- For evaluation of PQR, in case Bidder alone does not meet the pre-qualifying technical criteria C1 above, bidder may utilize the experience of its Parent/Subsidiary Company along with its own experience , subject to followings:
 - The parent company shall have a controlling stake of $\geq 50\%$ in the subsidiary company (as per Format-1).
 - The Parent Company/Subsidiary Company of which experience is being utilized for the bidding shall submit Security Deposit (SD) equivalent to 1% of the total contract value.
 - 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).
- For conversion the currency, 1 INR (Indian Rupees) = 1.6 NPR (Nepalese Rupees) and vice versa shall be considered.
- For Sl.No. 'C.1' above Value of work is to be updated with indices as below:**

i) For work(s) executed in India:

"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-

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

Where,

P = Updated value of work

R = Value of executed work

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

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

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

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

ii) For work(s) executed in Nepal:

"Nepali field labour index namely "National salary & wage index for construction labours (Base: 2004-05 = 100) issued by Nepal Rastra Bank " 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-

$$P = \left\{ R + 0.85 \times R \times \frac{(X_N - X_0)}{X_0} \right\}$$

Where,

P = Updated value of work

R = Value of executed work

X_N = Nepali field labour index namely "National salary & wage index for construction labours (Base: 2004-05 = 100) issued by Nepal Rastra Bank for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).

X_0 = Nepali field labour index namely "National salary & wage index for construction labours (Base: 2004-05 = 100) issued by Nepal Rastra Bank for last month of work execution

8. Bidders shall submit relevant documents, meeting above requirements at C & D.

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.

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)

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

ANNEXURE - 2**CHECK LIST****NOTE: - Tenderers are required to fill in the following details and no column should be left blank**

1	Name of the Tenderer		
2	Address of the Tenderer		
3	Type of the Firm/ Company		
(i)	In case of Individual Tenderer	His / her full name, address and place & nature of business shall be furnished along with the offer.	
(ii)	In case of Partnership Firm	The names of all the partners and their addresses, A copy of the partnership deed/instrument of partnership duly certified by the Notary Public shall be furnished along with the offer..	
(iii)	In case of Companies	a) Date and place of registration including date of commencement certificate in case of Public Companies (certified copies of Memorandum and articles of Association are also to be furnished). b) Nature of business carried on by the Company and the provisions of the Memorandum relating thereof.	
4.a	Details of Contact person for this Tender	Name : Mr/ Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4.b	Details of alternate Contact person for this Tender	Name : Mr/ Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
5	EMD DETAILS	Mode of payment: Demand Draft/ NEFT/ RTGS/ OTHER Details of Transaction:	
6	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
	DESCRIPTION	APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
7	Whether all pages of the Tender documents including annexures, appendices etc are read and understood	Applicable/ Not Applicable	YES / NO
8	Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE – 1) is understood and filled with proper supporting documents referenced in the specified format	Applicable/ Not Applicable	YES / NO
9	Audited Balance Sheet and profit & Loss Account for the last three years	Applicable/ Not Applicable	YES / NO
10	Copy of PAN Card	Applicable/ Not Applicable	YES / NO
11	Copy of GST registration	Applicable/ Not Applicable	YES / NO

SL. NO.	DESCRIPTION	APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
12	Organization Chart of the tenderer's organization, including the names, addresses and contact information of the Directors/Partners shall be furnished along with the offer.	Applicable/ Not Applicable	YES / NO
13	Integrity Pact	Applicable/ Not Applicable	YES / NO
14	Offer forwarding letter / tender submission letter [Form No. F-01 (Rev 00)]	Applicable/ Not Applicable	YES / NO
15	Declaration by Authorised Signatory [Form No: F-02 (Rev 00)]	Applicable/ Not Applicable	YES / NO
16	Declaration by Authorised Signatory regarding Authenticity of submitted documents [Form No: F-02A (Rev 00)]	Applicable/ Not Applicable	YES / NO
17	No Deviation Certificate [Form No: F-03 (Rev 00)]	Applicable/ Not Applicable	YES / NO
18	Declaration confirming knowledge about Site Conditions [Form No: F-04 (Rev 00)]	Applicable/ Not Applicable	YES / NO
19	Declaration for relation in BHEL [Form No: F-05 (Rev 00)]	Applicable/ Not Applicable	YES / NO
20	Non-Disclosure Certificate [Form No: F-06 (Rev 00)]	Applicable/ Not Applicable	YES / NO
21	Bank Account Details for E-Payment [Form No: F-07 (Rev 00)]	Applicable/ Not Applicable	YES / NO
22	Format for seeking clarification [Form No: F-08 (Rev 00)]	Applicable/ Not Applicable	YES / NO
23	Capacity Evaluation of Bidder for current Tender [Form No: F-09 (Rev 00)]	Applicable/ Not Applicable	YES / NO
24	Power of Attorney for Submission of Tender/Signing Contract Agreement [Form No: F-25 (Rev 00)]	Applicable/ Not Applicable	YES / NO
25	Analysis of Unit rates [Form No: F-26 (Rev 00)]	Applicable/ Not Applicable	YES / NO
26	Tie Ups/Consortium Agreement are submitted as per format [Form No: F-22 (Rev 00)]	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)

Rev 01
1st June
2012

TECHNICAL CONDITIONS OF CONTRACT (TCC)

(Document No PS:MSX:TCC)

BHARAT HEAVY ELECTRICALS
LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – I: Project Information

1 Project Information

1.1 Introduction

SJVN Arun-3 Power Development Company (P) Ltd. (SAPDC), a company promoted by SJVN Ltd. (owner/purchaser/employer) has placed an order Bharat Heavy Electricals Limited (BHEL), a company incorporated under the laws of India and having its registered office at BHEL House, Siri Fort, New Delhi 110049, India for execution of Electro Mechanical Works of Arun- 3 HEP, Nepal. The scope of Electro Mechanical Works comprising Design, Engineering, Manufacturing, Supply, Transportation to site, Material handling at site, erection, testing, commissioning and handing over of Electro Mechanical components for Electro Mechanical works of 4x225 MW Arun-3 HEP, Nepal.

The scope of works in this contract include Material Handling with Storage Facilities as per below Scope of Works for Electro Mechanical Works of 4x225 MW Arun-3 HEP, Nepal.

Arun-3 HEP is proposed to be Run of River with Pondage scheme on river Arun. The underground Power House site is located on left bank of river Arun in Sankhuwasabha Districts in Eastern Nepal at a distance of 50 km from Khandbari, the headquarters of Sankhuwa Sabha District of Nepal. It is about 240 km from Biratnagar and about 740 km from Kathmandu. The project area can be reached by flight from Katmandu to Tumlingtar of about 660 km and then by road from Tumlingtar to Site of about 68 km. The Power House is accessible via Biratnagar from Jogabani, which is 800 km from Kolkata by rail route & 600 km by road route. From Jogbani, the road distance to projects sites via Biratnagar and Hile is about 300 km.

1.2 Climatic Conditions:

Average maximum temperature:	30 ⁰ C
Average minimum temperature:	20 ⁰ C
Maximum river water temperature:	25 ⁰ C
Minimum river water temperature:	10 ⁰ C

1.3 Seismic Zone:

The equipments have been designed for operation in seismic zone four for earthquake resistance. The equipment and each part of it shall be strong enough and sufficiently well connected to resist total operating stresses resulting from forces in normal operation, abnormal condition and forces superimposed due to occurrence of earthquakes of intensity which cause a ground acceleration of 0.16 g in vertical direction and 0.24 g in the other horizontal directions.

1.4 Transportation:

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Chapter – I: Project Information

The nearest major airport is at Kathmandu which is at a distance of 740km from Project Site. Biratnagar is connected to Kathmandu by Road.

The major nearest seaport for the trans-shipment of heavy equipment to Nepal is Kolkata. The two other sea ports Mumbai & Chennai are connected to Kolkata and Jogbani by rail as well as roads.

Railway transport is available from Kolkata and other locations of Indian Cities to the Nepal-India border only. The broad gauge line from Kolkata ends at Jogbani, Bihar. All rail freight for Nepal has to be unloaded there. The distance of Kolkata by rail route is about 800 km. From Jogbani, the road distance to the projects sites via Biratnagar is about 300km.

Road access to Arun-3 project from Kolkata to Jogbani is 600km; from Biratnagar to Project Area via Hile is 300km. Total distance to project area from Kolkata is 900km. Alternative route could be from Kolkata to Raxaul which is 800km, further from Birganj to Dhalkebar to Hile to Project Area which is 450km. Total distance Kolkata to Project Area is 1250 km.

1.5 **Transportation Limitation:**

The transport limitation by road from Jagbani to the project site is the governing factor for determining permissible package size and weight.

The existing road allow the transport of the package of following size and weight.

Size (in mm) (l x b x h)	9700 x 6000 x 6000
Weight (Tonnes)	70R

However, the bidder shall assess and satisfy himself as to the adequacy of approach roads to the Site, adequacy of existing culverts/bridges/roads for expected traffic etc. No claim shall be entertained on this account under any circumstances from the contractor.

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Chapter – II: Scope of Works

2 Scope of Work:

2.1 Material handling:

Material handling works shall include:

- A. Unloading of all the incoming materials by truck/ trailer/ carriers from BHEL Units/their vendors at BHEL Stores.
- B. Preliminary verification of materials at the time of unloading from road transport vehicle and reporting immediately the discrepancies like damages and shortages noticed.
- C. Shifting of materials to Open Storage Yard/Closed Storage Shed, if unloaded at other place during the contract period.
- D. Providing necessary assistance for insurance claim settlement process.
- E. Detailed material verification with reference to packing list and loading advice slip after unpacking of boxes/crates (wherever is applicable), record keeping (maintain stock register, DB register, material issue register etc. both in hard copy and soft copy), repacking, where called for and preparation of receipt inspection reports.
- F. Proper storage (stacking & storing as per instructions) of materials in open Storage Yard/ Closed Storage Shed during the storage.
- G. Re-handling and Restacking of materials as and when called for by BHEL. This also includes excess/redundant/ scrap materials returned to stores by BHEL Construction & Erection contractors.
- H. Preservation of the materials in accordance with BHEL preservation manual and/or as per BHEL instructions.
- I. Handling and Loading of outgoing materials those are to be sent to other destinations.
- J. Construction of temporary shelters on some of the special items as per the instruction of the site engineer. Contractor shall be paid additional cost for per cubic meter construction of temporary shelters.
- K. On receipt of demand for material from erection site, loading of material on truck/ trailer/ carriers, handing over to erection contractor / others agency of BHEL. Transporting of materials from stores to powerhouse/ erection place/other work site (including Power House, BFV House, and Switchyard) and unloading thereof, shall be in scope of others agency/ erection contractor of BHEL.
- L. Handing over of spares & surplus material to customer/other agency and material reconciliation with BHEL/Customer/Other agency on closure of contract.
- M. General cleaning, grass cutting, upkeep and maintenance of stores including fixing of lightings/electrical maintenance during entire contract period.

- 2.1.1 E&M components as per **Annexure-I**, are to be supplied from BHEL's Manufacturing Units located in India & through its Vendors located in India and overseas.

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Chapter – II: Scope of Works

- 2.1.2 Total weight of the materials of electromechanical components will be approximately 12000 MT. **Out of total materials, material handling of around 2000 MT is in scope of this contract.**
- 2.1.3 The plant material shall be unloaded/loaded at BHEL stores by Hydra /Mobile Crane. Contractor shall arrange his own Hydra/cranes /alternative arrangement like jack and sleeper, if acceptable to BHEL, Site Engineer at Site.
- 2.1.4 Provision of adequate Tools & plants including 1 no. 30 MT Mobile Crane, 1 no. 14 MT Hydra **as per requirement** with its running and operator cost for handling of all materials incl. heaviest/ODC consignment, shall be in scope of contractor.
- 2.1.5 Provision of 2 no. portable DG sets 5 kVA with all cost incl. running fuel charges for electricity requirement for BHEL stores during entire period of Material Handling works.
- 2.1.6 Consignments, which cannot be handled by Hydra /Mobile Cranes of BHEL, has to be unloaded / loaded, handled by sleeper jack method/cranes in tandem operation. Alternatively suitable capacity crane(s) is to be arranged by contractor for handling such consignments and no extra cost shall be payable to contractor for the same.
- 2.1.7 Due to delay in start of project or availability of erection fronts site or mismatch of materials inflow from BHEL MUs and outflow to site, there may not be enough space for storing the plant materials at BHEL stores. In this case, BHEL may ask contractor to unload materials at other locations, contractor shall manage /deploy manpower and T&Ps at these locations with same quoted rate as per Rate Schedule.
- 2.1.8 At TCC, Chapter IV, weights and dimensions of some major components/ equipments shown are approximate and are liable to vary.
- 2.1.9 The contractor has to handle whatever actual materials are dispatched for the project irrespective of any variations. Payments shall be released for the actual gross tonnage handled for material handling work.
- 2.1.10 The contractor shall deploy adequate number skilled, semi-skilled and unskilled workers like Mobile crane operator, riggers, welder, helpers etc. as per requirement for material handling work till completion of work.
- 2.1.11 Contractor shall provide all necessary preservatives, paints, thinners, rust preventives, grease, lubricants etc. for preservation of components of all materials during storage at his own cost. All tools and tackles and other consumables required for preservation of components including supervision shall also provide the contractor at his own cost. Preservation of components also includes applying preservatives, paints, rust preventives, greasing of threaded portions, repainting of work order no. / DU no.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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- /Component codes etc. After preservation wherever necessary, components will be stacked properly as per original stacking for which no additional payment shall be made.
- 2.1.12 Detailed verification of materials with reference to packing list / Loading advise slip / etc., after unpacking of boxes & crates; repacking where called for to the satisfaction of BHEL Engineer, after detailed verification, preparation of receipt inspection reports etc shall be carried out within the quoted rate within 30 days of the unloading. If the verification is not carried out within 30 days for reasons attributable to the contractor, then BHEL is having right to carry out the verification at the risk and cost of the contractor.
- 2.1.13 After the stacking/verification, the materials may need to be restacked / shifted /re shifted within the storage area as per the instructions of the Engineer. The activity of restacking shall not be payable if the material after verification need to be shifted and restacked to different locations in storage area.
- 2.1.14 Payment of all demurrages/ warfages that results due to contractor's faults would be the responsibility of contractor and to his account. If BHEL have to make payment of demurrage/ warfage together with freight, the amount so paid as demurrage/ wharfage for the reasons stated above shall be paid by the contractor forthwith or would be recovered from bills of the contractor.
- 2.1.15 In any case contractor will pursue with concerned Carrier authorities at all level (local/HQ etc.) for waiver / reduction to the minimum of such demurrage charges. Whenever such demurrages become payables due to reasons not attributable to contractor, contractor will immediately bring it to the notice of BHEL with specific request to bear such charges. The decision of the Engineer in such case will be final and binding on the contractor.
- 2.1.16 The contractor has to ensure the unloading and removal of materials from unloading place within the permitted time and ensure to keep the area free and avoid jamming. Any loss to BHEL on this account shall be recovered from the contractor.
- 2.1.17 Any discrepancy/ shortage/ damage found in the consignment after taking delivery from the carriers after giving clear receipt would be the responsibility of the contractor and the amount liable to be lost by BHEL on such accounts is recoverable from the contractor. The contractor shall verify the consignments in detail within 30 days of receipt and report the discrepancies in prescribed formats not later than 15th day from date of verification. Any loss on account of delayed reporting shall be recoverable from contractor's bill/any payment due. Contractor shall arrange all facilities to open packages - where required in the presence of BHEL engineer, verify the contents, repack wherever and whenever called for and properly stack them as per storage manual or/and as may be directed by BHEL Engineer.

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- 2.1.18 It would be the responsibility of the contractor to examine the packages, consignments, etc. on arrival and bring to the notice of carriers and BHEL Authorities regarding loss /damages, if any, observed in the consignments proposed to be taken delivery. Before taking delivery, particularly of consignments in ‘smalls’, the weight of the package shall be checked with the invoiced weight / contents of the packages and any discrepancy shall be reported immediately to BHEL/ carriers. In all the cases of loss / damages the contractor will take open delivery from the carriers & shall forward such Open Delivery Certificates (ODC) to the Engineer within 07 days of receiving such consignments. Verification of such damaged packaging box / consignment shall be immediately carried out and discrepancies observed shall be documented in BHEL’s standard shortages/damage consignment formats/records. All expenses connected therewith shall be to the account of contractor. BHEL reserves right to claim losses, if any, accrued to BHEL in the event of contractor’s non-compliance to above.
- 2.1.19 BHEL reserves the right to recover from the contractor any loss which arises out of undue delay / discrepancy / shortage / damage or any other cause during transit and stacking in BHEL storage yards / store sheds, when the custody of the equipment is with the contractor.
- 2.1.20 Pre-defined identification system of the locations of open storage yard, covered store (closed storage shed) as well as storage racks has to be designed by the contractor with the approval of BHEL. Contractor shall put up prominent identification boards of segment allocations (for open and closed store) or inscription (on the storage racks) with clear visibility from a distance. Contractor shall also arrange to display plot plan at regular intervals in the covered/open storage. The contractor shall arrange proper displays/signs for various requirements as per instructions of BHEL.
- The display boards shall be made with structural steel & M.S. plates and shall be painted with synthetic enamel paint. Contractor shall have to periodically repeat such exercise as the original displays may get lost / damaged / deteriorate with time. The contractor shall arrange all materials and consumables for this purpose. Contractor shall have to make his own arrangements including supply of materials for displaying the proper identification tags, boards, marking, inscription etc.
- 2.1.21 Consignments coming on Saturday and Holidays are also required to be handled by the contractor promptly. It will be the responsibility of the contractor to contact the site engineer /his authorized representative of BHEL at their residence, if required, and obtain instructions to make suitable arrangements. In the event the contractor delays unloading from the carrier, the detention charges, if any, will be contractors account.
- 2.1.22 Contractor shall submit procedure with sketches of handling of critical & heavy (above 15 MT) components to BHEL well in advance or to be unloaded/loaded as per BHEL instructions and obtain prior approval before unloading and stacking.

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2.1.23 It shall be the responsibility of the contractor, to provide all necessary facilities and tools to open the packages, in the presence of the Engineer, verifying their contents, re-packing wherever and whenever necessary, properly stacking them as may be directed by the Engineer. These works should be so done so as to facilitate proper handling, periodical verification of materials, receipt position, stock taking etc. The contractor shall have experienced persons at site who can maintain the records of dispatch / receipt/ stacking / verification / shortage / damage / missing items etc.

2.1.24 Since this contract is intended to be a complete package from material receipt through issue/transactions right up to material reconciliation, full responsibility w.r.t the proper upkeep of facilities e.g. computers, stationary items; ensuring befitting discipline among the store assistants/staff under its control and accounting of materials on stock shall rest with the contractor at all times.

In the remote possibility of any untraceable material, customarily BHEL has to process the insurance claim. To kick off such claim, the contractor shall render all necessary assistance including augmentation of documents (FIR etc) within the quoted price as may be required for realization of the insurance claim.

2.1.25 All materials shall be stored at least 6” above ground level. No material shall be left to remain on ground at any time. Materials shall not be stacked in low-lying areas, where they are likely to get flooded during rains. Concrete sleepers / blocks / Cubes and Tarpaulin for this purpose wherever deemed necessary will be arranged by contractor as per BHEL site engineer’s instructions within their quoted price. These items shall be stacked /stored properly at a location(s) specified by BHEL when not in use.

2.1.26 It is possible that certain heavy items / consignments/sensitive package require fabrication of a suitable temporary shed over it. These sheds will be covered with suitable G.I sheets. The contractor will be required to fabricate such sheds.

Total built up area of such sheds may be approx. 200 Sq mtr with different height upto about 4000 mm.

The temporary sheds area shall be cleared of any vegetation, scrap and debris. The stores shall be made of Pipe/tubular columns, tubular/angles truss, purlins, side ties along the purlins, as specified.

The Tubular columns are erected with holding down column members in the RCC 1:1.5:3 (using 20 mm size coarse aggregate) foundation of pedestal size 500x500x500 mm. Corrugated GS sheets shall be provided with polymer coated J or L hooks, 8mm nut bolts for roofing and side cladding with appropriate anchoring, fixing and drainage arrangements. 50 mm/32 mm dia tubular pipes may be used for MS trusses and purlins for temporary stores.

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- All materials required for this will be provided by contractor including all expenses towards man power, T&P, consumables etc. After the completion of the work, the contractor will dismantle the same, remove these materials from storage area and taken back by them. The contractor will be paid @ NPR 8000/Per MT for such works.
- 2.1.27 The material/ equipment requiring indoor storage will be handed and stacked inside the closed storage shed by the contractor using material handling equipment like Fork lift etc.
- 2.1.28 For checking / verification of the components / packages with packing slips GR/ LWB etc., sufficient experienced persons and other facilities shall be provided by the contractor as and when required by the Engineer.
- 2.1.29 The contractor shall execute the work in the most substantial and workman like manner. The stores shall be handled with care and diligence. Any loss to BHEL due to contractor's lapse / negligence shall have to be made good by the contractor.
- 2.1.30 If the contractor or his workmen shall break, deface injure or destroy any part of a building, road, Serbs, fenced enclosures, water pipes, cables, drains, electric or telephone posts or wires, trees, stored components or any other property or to any part of erected equipment etc., the contractor shall make the same good at his cost or in default the Engineer may cause the same to be made good by other workmen/agency or by other means and deduct the expense (of which the BHEL Engineer's decision is final) from any sum that may be then or at any time thereafter become due to the contractor or from his security deposit or any other money due.
- 2.1.31 Responsibility of watch and ward arrangement shall lie with the contractor. In case any equipment/ material is lost/ damaged while in the custody of the contractor, the cost of repair/ replacement if any to bring back the equipment in original order shall be deducted from the contractor's bill. BHEL's decision in this regard shall be final and binding on the contractor.
- 2.1.32 It shall be the responsibility of the contractor to keep the storage areas (closed storage shed/ open storage yard) in neat and tidy conditions. Any vegetation like grass, bushes, Sarkandas etc. shall be cut periodically in open storage area & removed as per requirement & instructions of BHEL Engineer within the contractual value. All surplus / unusable packing materials shall be removed and deposited at location(s) specified by BHEL within the project premises (including weighing of the same within the project premises if required).
- 2.1.33 In case contractor is not able to unload, stack the material at a pre-determined area, as per direction of the Engineer for any reason whatsoever (including non-availability of cranes and other T&P etc.), BHEL shall be at liberty to get the work/part work done by engaging other agency / equipment / T&P etc. at the risk and cost of the contractor.

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- 2.1.34 Unloading from trailer at storage area, stacking and re-stacking of heavy sophisticated equipment like panels, heavy motors, heavy bearings, generators, rotors, C&I panels, turbine components, pumps, panels etc. shall be done in the presence of or as per the directions of BHEL representative.

Certain items may be dispatched with tie rods/ strips welded with frame carrying items and with trailer. These tie rods / strips are required to cut by using Gas flame or by other method as directed by Engineer for unloading of materials.

- 2.1.35 Under the scope of this contract, it shall be the responsibility of the contractor to provide all necessary facilities to open the packages in the presence of the engineer, verifying the contents of the packages, repackaging where ever and whenever necessary, properly stacking them as may be directed by the engineer so as to facilitate proper handling, periodical verification of material, receipt position, stock taking etc. for this, the contractor shall have experienced person at site who can maintain the records of dispatch/ receipt/ stacking/ verification/ shortages/ damage/ missing items etc. The verification of materials shall be carried out within 30 days and report shall be submitted as a documentary proof.

- 2.1.36 Details of Major equipment along with tentative weights supplied by BHEL under this scope are given in (Chapter-IV of TCC). However changes on account of change in design may occur, for which no compensation will be payable and contractor shall complete the entire work as detailed in the tender specifications within finally accepted rates/ prices. As per instructions of BHEL site engineer and / or due to space constraint at project stores, some of the plant materials such as lifting devices, hydraulic test device, other T&P may require multiple handling and payment shall be made as per Terms of Payment 1 (a) of Cl. 6.1.5. This shall be responsibility of contractor.

- 2.1.37 In case some materials are to be dispatched from BHEL Store to Manufacturing Units (MUs) of BHEL, other sites or any other place, the contractor may be asked by BHEL Engineer/In charge to get the same packed. No extra cost shall be payable to contractor because of packing activities. However, wooden/packing materials will be provided by BHEL free of cost/reimbursed by BHEL and loading charges for the same shall be payable extra as per Terms of Payment 1 (a) of Cl. 6.1.5.

- 2.1.38 The owner / employer or his authorized agents may inspect stores, storage yard, etc during the period of the contract awarded to him. The contractor shall make necessary arrangements for such inspection and carry out the rectification pointed out by the owner/employer without any extra cost to the owner / employer. No cost whatsoever such duplication of inspection of work be entertained.

- 2.1.39 Exposed parts those required special protection such as bearings, slip rings, commutators and other fragile items shall be protected against moisture ingress and corrosion during storage and are periodically inspected.

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- 2.1.40 Contractor shall also ensure that lifting heavy equipment such as Top Cover, BFV door, EOT Crane Trolley assembly, shaft etc. shall be done strictly in accordance with drawing given for the purpose and using of lifting tackles supplied for the purpose, if any. Wherever required rubber/ leather pads shall be given between the slings and the machined parts to avoid any damages, scratches to the machined surface. Contractor shall cover bearing journals with grease and cloth as per direction of engineer to avoid damages to the surface.
- 2.1.41 As per the erection requirement, contractor shall load material on the truck/trailer of other contractor. The maximum care has to be taken during that time of loading the material at storage area. No untoward damage should occur to the material at that time. Any loss of item/ damages shall be to the contractors account.
- 2.1.42 Contractor has to store all items in closed storage shed which require indoor storage not limited to bolts, pins, packing, tools, insulation materials, electrical parts with electrical devices attached, electric motors, electronic Panels, excitation equipment, automation equipment and associated equipment/consumables, instruments, welding material and equipment, all small parts and all parts of the plant which already have been finally painted etc. Partition required inside the closed storage shed for proper storage of items, shall be done by contractor.
- 2.1.43 Preservation of all material received at Project stores shall be in the scope of contractor. For further details regarding preservation refer SCC Clause No. 6.2.

2.2 **Storage Facilities:**

2.2.1 **Scope of Storage Facilities shall include construction, development and maintenance of the followings:**

2.2.1.1 **Open Storage Yard adjacent to Project Road from Chainkuty to Power House, at Ahale Village , around 23 km from Power house**

Land for Open Storage Yard of approximately 2000 sq.m. fairly leveled and compacted shall be provided to contractor by BHEL. Widening, maintaining uniform gradient and strengthening of approach road of length approx. 25m from Project Road to be done by Contractor. Contractor shall provide and install approx. 200 running meter of barbed wire fencing consisting of 10 rows of barbed wire at a spacing of around 200 mm supported on angles (50 x 50 x 6mm 2.35 m long) embedded (350 mm in ground and 2.0 m above ground) at spacing of 3.0 meter each. Struts at 30 m c/c and at all turnings. Contractor shall also provide and install a 2 part 6 meter wide (2x3.0 m), fabricated grill type steel gate 2.1 meter high supported on RCC or steel piers/columns on both sides. One small room (approx. size 3 m x2 m) adjacent to the gate shall be constructed for the security check post and provided with one no. Almirah, office table & chair for official purpose. Suitable no. of electric poles above ground with lighting, fixtures &

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fittings shall be provided in store area for proper illumination of Storage area. Indicative drawings for reference are enclosed as **Annexure-II**.

2.2.1.2 **Closed Storage Shed adjacent to Project Road from Chainkutti to Power House, at Ahale Village, around 23 km from Power house.**

Land of around 1000 sq.m. area is available at right side of the Project Road, opposite to the location of Open Storage Yard, which is required to be leveled and developed for construction of Closed Storage Shed. One no. Closed Storage Shed of area 600 Sq.m. is to be constructed on the above developed and leveled land.

The scope of work comprise but not limited to Design, Manufacturing, Supply, Receipt at Site, Erection, Site Painting etc. including Civil Works, Foundations, Electricals, Lighting & Fixtures etc. all complete and handing over to site.

The stores shall be made of fabricated I-Beam columns, tubular truss, purlins, side ties, bottom ties, and wind ties of minimum 25mm x 5mm over the roof sheets along the purlins, as specified in the enclosed indicative drawings. Work shall be executed as per BHEL Engineer's instructions, drawings, detailed specifications. The working/shop drawings for Steel structures, trusses, etc. shall prepared by the contractor and shall be got approved by BHEL before start of work. Indicative drawings for reference are enclosed as **Annexure-III**.

Note:

Materials/items used for construction and development of open storage yard and closed storage sheds and temporary sheds will be the property of the contractor, which shall be required for the entire contract period after which the contractor shall be free to dismantle and take these items from site. However, maintenance of storage facilities during entire period will be in scope of contractor. No separate payment of any type shall be payable for dismantling and taking of these items from the area.

2.2.2 **Responsibility of Contractor:**

2.2.2.1 Furnishing all labour (skilled, unskilled etc.), materials, supervision, construction plans, equipment, supplies, transport to and from the site, fuel, electricity, compressed air, water, transit and storage insurance and all other incidental items and temporary works not shown or specified but reasonably implied or necessary for the proper completion, maintenance and handing over the works, in accordance with the stipulations and specifications laid down in the contract documents and additional stipulations as may be provided by the BHEL Engineer during the course of works shall be responsibility of Contractor.

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- 2.2.2.2 Furnishing samples of all materials required by the BHEL Engineers for testing / inspection and approval, for use in the works. The BHEL Engineer for final incorporation in the works may retain the samples.
- 2.2.2.3 Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the BHEL Engineer.
- 2.2.2.4 Giving all notices, paying all fees, taxes etc., in accordance with the General conditions of contract that is required for all works including temporary works.
- 2.2.2.5 Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
- 2.2.2.6 Carrying out survey of the work area to establish levels and coordinates at suitable intervals from existing grid levels and coordinates furnished by the owner established bench marks, setting out the locations and levels of proposed structures, constructions and marking of reference pillars and other identification works etc. as required, The contractor shall provide the Customer / BHEL such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.

2.2.3 **General**

- 2.2.3.1 Contractor shall furnish the manufacturers test certificate for the steel & cement procured by them. Apart from this all the field test shall be arranged by contractor for cement, bricks, coarse & fine aggregate either at site or nearby Field Quality Lab. approved by BHEL if so desired by BHEL's Engineer. All the expenses in these regards shall be borne by contractor.

Contractor shall procure reinforcement steel, structural steel & Cement* from reputed manufacturer & approval for the same shall be obtained from BHEL well in advance before ordering for the materials.

*Cement shall be 'PPC CONFIRMING TO IS 1489 (Part-I)' OR 'OPC GRADE 43 or Equivalent'.

- 2.2.3.2 The contractor shall visit the site, ascertain the local conditions, entry/traffic restrictions, all obstructions in the area, and ascertain all site conditions and particularly the sub-soil conditions etc. The contractor at his own cost shall carry out the survey to study the properties of soil/sub soil like strength to withstand the weight of structure during all weather conditions without sinking of foundation. If any of such defects like cracks, sinking of foundation etc. occur after completion of work till the performance guarantee period, it shall be rectified by contractor free of cost including the supply of materials required. No claim shall be entertained on this account under any circumstances from the contractor.

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2.2.3.3 The contractor shall provide and maintain at his own cost pumps and other equipment to keep the work free from water and continue to do so until the handing over of the work. The contractor shall clear all trees, rubbish, vegetation, brickbats etc. And dispense them suitably in allotted areas at own cost.

2.2.4 Drawings:

2.2.4.1 The detailed tentative drawings and specifications will form part of the tender documents. BHEL reserves the right to modify/alter the tender drawings, if necessary during the actual execution at site. However, the Drawings/Sketches are to be read along with specifications and shall be treated as in the scope of work. Please refer **Annexure-II & III for Drawings.**

2.2.5 Specification for Civil Work, Plumbing Work, Sanitary Work, Electrification Work for Open Storage Yard, Closed Storage Shed etc.:

2.2.5.1 Standard specifications for various items of work for building construction as per the relevant IS-codes (latest edition) shall be applicable for this work. The work has to be executed as per relevant standards, IS Codes specifications, approved drawings and as directed by BHEL Engineer to the satisfaction of BHEL.

2.2.5.2 Design Considerations for Closed Storage Shed:

1. Size of Closed Shed – 12Mc/c X 50Mc/c X 6.0M (approximate).
2. Clear Height of closed Shed (between FFL & Bottom of truss/ Structural Member) – 6.0M.
3. Columns shall be spanning – 5.0M c/c long span & 4.0M c/c short span.
4. All side cladding/ roof sheets shall be fitted in such a way that they can be removed at any point of time.
5. 20 gauge MS Rolling Shutters of size 5m x 6m (approx.) as per IS code specifications, complete, mechanically operated from inside and outside both as instructed by BHEL Engineer including two coats of synthetic enamel paint of approved colour and quality over one coat of red oxide primer with locking arrangement. Suitable arrangement shall be made for easy operation of shutters (mechanical gear operated).
6. Man-entry gates to be provided on suitable locations in Closed Storage Shed.
7. The bidder should submit a guarantee for 12 months of operations for the materials supplied and erected by him.
8. All designs have to be carried out as per relevant IS code.

2.2.5.3 Frame Structure:

Closed Storage Sheds shall be designed as frame structure with Structural Columns, Trusses, Foundations and Plinth Beam for supporting self-loads, live-loads, wind loads, seismic loads etc. Contractor shall carry out the designing work considering the

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nominal requirements as per IS Standard specifications and detailed design drawings along with detail calculations shall be submitted to BHEL for approval before start of work.

Drawings provided are tentative only for tendering purpose only, works shall be carried out as per the detail drawings to be prepared by vendor (vetted by registered civil structure consultant) and approved from BHEL.

2.2.5.4 **Excavation:**

Excavation for Column Foundations, Walls, Plinth Beam and Trenches etc. shall be made as per IS specifications. Marking of Area shall be done and Levels shall be measured and recorded before start of Excavation in presence of BHEL Engineer. In case of any discrepancy regarding measurement BHEL Engineer's decision shall be binding.

2.2.5.5 **Filling:**

Any filling/loose soil met below the foundation shall be made up with lean cement concrete 1:4:8 mix (min).

2.2.5.5.1 **Granular Murrum Filling:** 150 mm thick granular murrum filling shall be done as per drawings and as per relevant IS code specifications, including watering, ramming, compaction etc. below soling of column foundations in the plan area of 2m X 2m (if black cotton soil/ash/newly backfilled soil is found at the bottom level of soling), Roads, Storage Yard, Ramps etc.

2.2.5.5.2 **Stone Soling:** Stone soling of required thickness (250 mm to 300 mm) shall be provided as per drawing below Flooring, Ramp & Column foundations of storage shed etc. by using 80 mm size hard broken black granite/ quartzite/ gneiss/ trap stone metal including granular murrum packing, watering & compaction etc. complete, as per standard specification and instructed by BHEL Engineer.

However, requirement of Stone Soling can be eliminated in case a hard strata/good stratum is met within foundation level & PCC shall be done directly in such cases. However, this can be decided as per site requirement in consultation with BHEL Site Engineer.

2.2.5.5.3 **Excavated Earth Filling:** Filling under floors, sides of foundations, drains, roads with 100mm/ 150mm thick layer of compacted selected earth/ river sand including watering, consolidation etc. shall be executed as per IS specification and drawings (if any). Basement and sides of the foundation wall shall be filled in with selected excavated earth in the layers not exceeding 150 mm including watering, consolidation etc. complete as per IS specification and as directed by BHEL Engineer.

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2.2.5.6 **Disposal:** The excess/unutilized suitable earth and debris shall be disposed & levelled to the proposed mentioned area for development. All unusable earth, debris, trees, vegetation etc. shall be disposed off at a location embarked by BHEL / Client.

2.2.5.7 **PCC:**

PCC (1:4:8):

100 mm thick PCC (1:4:8) shall be provided for following:

- i) Below RCC Footing of Columns.
- ii) Plinth Beam Base.
- iii) Floor Filling for Plinth raising.
- iv) Floor Filling for Plinth Raising at Pantry and Bathroom.
- v) Below Ramp and Internal Wall Foundations.
- vi) In the Base of Soak Pit Slab.

200 mm thick PCC (1:4:8) shall be provided for the base of septic tank as per drawings and as directed by BHEL Engineer.

PCC (1:3:6):

100 mm thick PCC (1:3:6) shall be provided in the width of approx. 750 mm around the perimeter of the Closed Sheds for Plinth Protection as per standard specifications and as directed by BHEL Engineer.

Coping (1:2:4):

40 mm thick coping of Cement Concrete (1:2:4) shall be provided over the side walls (230 mm thick) of the Drains in the Open Storage Yard.

This shall include supplying and placing PCC at all depths below plinth level including formwork, curing, all materials, tools and plants and labour complete. Concrete of 1:4:8/ 1:3:6/ 1:2:4 grade as defined in IS- 456 with 40mm/20mm and downgraded stone aggregates as per drawing. Nominal mix (volumetric) shall be allowed to use as per the guidelines of IS-456 (latest edition) with min. W/C ratio & cement content as per IS stipulation for moderate condition. Concrete shall be produced by concrete mixer machine & hand mix is generally not acceptable.

Note: However, in certain unavoidable circumstances, hand mix shall be permitted with 10% extra cement content as per the discretion of BHEL Engineer.

2.2.5.8 **RCC:**

RCC 1:2:4 shall be provided for following Works:

- i) **RCC Footings:** 250 mm thick RCC (1:2:4) Footings for Columns, of min. size 1.5m X 1.5m with the reinforcement of 12 mm dia. bars both ways (Lateral and Longitudinal) @ 150 mm c/c spacing or as per approved drawings, shall be provided below the column pedestals.
- ii) **RCC Pedestals:** RCC (1:2:4) Column pedestals of min. size 400mm X 400mm from top of the Column Footing (for closed sheds) up to G.L., with the reinforcement of 4 Nos. 16 mm dia at the corners and stirrups of 8 mm dia @ 200 mm c/c spacing or as per approved drawings shall be provided.

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- iii) **RCC Columns:** RCC (1:2:4) Column of min. size 300mm X 300mm, height of 3 m (from F.F.L.) from top of the RCC Footing (for Security Rooms) with the reinforcement of 4 Nos. 16 mm dia. at the corners and stirrups of 8 mm dia @ 200 mm c/c spacing or as per approved drawings shall be provided.
- iv) **Plinth beam for Closed Sheds:** RCC (1:2:4) plinth Beam of min. size 400mm X 500mm WXD, with the reinforcement of 02 Nos. 20 mm dia. bars at Top, 04 Nos. 16 mm dia. bars at bottom and 8 mm dia. Stirrups (2 Legged) @ 200 mm c/c spacing or as per approved drawings, shall be provided throughout the perimeter of the Closed Sheds along the Column Foundations.
- v) **Plinth beam for Security Room:** RCC (1:2:4) plinth Beam of min. size 230mm X 300 mm (W X D), with the reinforcement of 02 Nos. 20 mm dia. bars at Top, 03 Nos. 16 mm dia. bars at bottom and 8 mm dia. Stirrups (2 Legged) @ 200 mm c/c spacing or as per approved drawings, shall be provided throughout the perimeter of the Security Room along the Column Foundations.
- vi) **RCC (1:2:4)** for Baffle Beam, Slab of Septic tank, Side racks and Ramp etc. shall be provided as per approved drawings and as directed by BHEL Engineer.

This shall include supplying and placing RCC at all depths / levels including form work, curing, all materials, tools and plants and labour complete. Concrete of 1:2:4 grade as defined in IS- 456 with 40mm/20mm and downgraded stone aggregates as per drawing. Nominal mix (volumetric) shall be allowed to use as per the guidelines of IS-456 (latest edition) with min. W/C ratio & cement content as per IS stipulation for moderate condition. Concrete shall be produced by concrete mixer machine & hand mix is generally not acceptable.

For Reinforcement the IS Specifications as per SP-34 (latest addition) shall be followed. HYSD- TMT Steel bars of Grade Fe-415/500 from reputed manufacturer shall be used by contractor for reinforcement purpose.

2.2.5.9 Brick/Stone Masonry

Brick/Stone masonry shall be done by using best quality locally available stone/burnt clay bricks / Fly Ash Lime (FAL) bricks of standard size. Minimum strength of the bricks should not be less than 75 KG/SqCm. Other quality requirement shall be in line with the relevant IS Code. One-brick thick & Half-brick thick brickwork shall be constructed as specified, in Cement Mortar 1:6 & 1:4 respectively including linking, plumbing, levelling, pacing, joints, curing etc. Including all materials, tools & plants and labour complete at all level/elevation.

2.2.5.10 Formwork:

The formwork should be capable of carrying the dead load of concrete, the reinforcements and the forces of vibration. The form works shall be designed by the contractor and approved by BHEL Engineer. After sufficient curing period & after attaining adequate strength of concrete the formwork shall be removed with the approval of BHEL Engineer. The item of PCC/RCC shall be deemed as completed after removal of forms and required finishing is completed.

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2.2.5.11 **Roofing & Side Cladding:**

0.63 mm thick Permanently Profiled Color Coated GI (PPGI) Sheets over the roof trusses of sheds and for side cladding shall be supplied and fixed as per BHEL drawing including providing and fixing suitable flashing, trim closure caps, hips, ridges, Polymer Coated J or L hook, bolts, bituminous washers, GI cramp bolts, nuts, or self-tapping screws, scaffolding etc. complete, all as per latest IS 459, 3307 and 730.

Roof cover with FRP/RMP (2.0mm thick) sheet of size 3m X 0.9m at 5-6 m c/c on both side of Truss, for natural lighting shall be provided with suitable 'J' bolts, GI Cup Washers, GI Plain Washers, and Bitumen Washers / self-tapping screws etc. including cutting of GI sheets in shape and size as required for fixing FRP /RMP sheets complete. Wind ties for protection against lifting of roof by wind etc. if any as per standard practice shall be provided by the contractor.

2.2.5.12 **Structural Works:**

All structural works for Columns, Crane Girders roof truss, Fencing, Steel gates, doors etc. shall be carried out as per BHEL Engineer's Instructions, drawings and relevant IS Code Specifications. All Associated Fitting and Fixing materials such as foundation bolts, J / L hooks, bolts, nuts, washers, cleats, stiffeners etc. shall be paid along with the weight of Structure (Columns / Trusses etc.) and No extra payments shall be made on this account or on account of scrap generated.

Design and Fabrication drawings for structure steel works i.e. Columns, Trusses, Wind Ties, Purlins etc. shall be prepared by contractor and get approved from BHEL before start of work / procurement of materials.

2.2.5.13 **Sanitary & Drainage Works:**

2.2.5.13.1 Necessary sanitary and plumbing works shall be provided with necessary water taps and all connections with supply lines/the contractor for BHEL Storage Sheds shall provide septic tank. The materials used and the location etc. shall be as per the directions of BHEL Engineer. Contractor shall procure the materials from the reputed manufacturers only as approved by BHEL Engineer. Prior Approval of sample from BHEL Engineer is necessary before supplying the materials at site.

2.2.5.13.2 Septic tanks with soak pit/leaching cesspool shall be provided by the contractor at the location specified by BHEL complete in all respects as per IS specification. The drawing attached with tender is indicative only & any changes required at site shall be done as per the instruction of BHEL Engineer.

2.2.5.14 **Electrical installations:**

2.2.5.14.1 The electrical installation shall generally be carried out in conformity with the requirements of the Indian electricity act, 1910 as amended up to date and the Indian

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- electricity rules, 1956 framed there under and the relevant regulations of the electric supply authority concerned as well as IS: 732-1963 (latest edition). Before commencement of work, Contractor has to submit detail electrical layout drawings prepared by experienced & licensed electrical agency/engineer indicating the cable route, internal/external panels, cable sizing, fittings & fixtures etc.
- 2.2.5.14.2 Good workmanship is an essential requirement for compliance with the rules in the code. The work shall be carried out under the direct supervision of a person holding a valid certificate of competency, concerned for the type of work involved.
- 2.2.5.14.3 All outdoor/external lamps shall have weather-proof fittings of design approved by BHEL Engineer so as to effectively prevent the admission of moisture.
- 2.2.5.14.4 All main switches shall be of metal clad enclosed pattern, which shall be fixed at close proximity to the point of entry of supply.
- 2.2.5.14.5 Main and branch distribution boards shall be in accordance with Indian Standard IS 732-1963 "Code of practice for electrical wiring installation".
- 2.2.5.14.6 PVC conduit (concealed type) wiring system should be adopted throughout and all conduit pipes/channel shall be conforming to latest IS.
- 2.2.5.14.7 Approved and good quality copper wire with adequate current carrying capacity/voltage rating with proper insulation as per relevant IS should be used for the entire electrical wiring/installation.
- 2.2.5.14.8 The contractor shall also carry out the service connection from outside mains to the switchboard inside the building.
- 2.2.5.15 **Earthing:**
- 2.2.5.15.1 All Earthing system shall be in accordance with IS: 3043-1966 "Code of practice for Earthing".
- 2.2.5.15.2 The Installation and Earthing shall generally be carried out in accordance with the Indian electricity rules 1956 as amended from time to time and the relevant regulations of the electricity supply authority concerned.
- 2.2.5.15.3 All plugs and sockets shall be of three-pin type, one of the pins being connected to earth.
- 2.2.5.15.4 Bodies of all electrical appliances shall be earthed by the use of three pin plugs. The covers of the regulators if of metallic construction shall be earthed by means of a separate earth wire. A separate earth wire shall be used for earthing these appliances.

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Chapter – II: Scope of Works

- 2.2.5.15.5 All earth wires and earth continuity conductors shall be of copper/ galvanized iron. They shall be either stranded or solid bars of flat rectangular strips, due care is taken to avoid corrosion and mechanical damage to it. Inter connections of earth continuity conductors and main and branch earth wires shall be made in such a way that reliable and good electrical connections are permanently ensured.
- 2.2.5.15.6 The neutral conductor shall not be used as earth wire.
- 2.2.5.15.7 Welded, bolted and clamped joints only are permissible. For stranded conductor, sleeve connectors are permissible. Bolted connectors and their screws shall be protected against any possible corrosion.
- 2.2.5.15.8 The path of the earth wire shall, as far as possible, be out of reach of any person and shall be visible for inspection.
- 2.2.5.15.9 **Earthing Pits:** The galvanized iron pipe electrodes shall be used, which is not smaller than 38MM internal diameter and shall not be less than 4M in length and shall, as far as possible, be embedded below permanent moisture level with charcoal & salt and shall be one piece only without any joints.
Earthing Pits shall be provided as per relevant IS Code specifications to fulfil the functional and statutory requirements.
- 2.2.5.16 **Dewatering:**
- It is the responsibility of the contractor to engage sufficient dewatering pump (Diesel, electrically operated) of adequate capacity for dewatering of sub-soil, rain water from excavated pit and other localized area and keep the area dry and workable till completion of entire work within their quoted rate.
- 2.2.5.17 **General Notes for Steel Door, Windows and Ventilators:**
- 2.2.5.17.1 **Steel Door:** - Pressed steel doors as per standard specification, relevant IS code and sizes shall be supplied along with frames and fixed with suitable hold fasts, fixtures and fittings.
- 2.2.5.17.2 **Steel Window:** - All steel Windows shall be supplied and fixed as per standard specifications of relevant IS code and instructions of BHEL Engineer with all fixtures (i.e. handles, locks, latches, hooks etc.), glazing, fittings, holdfasts etc. Complete.
- 2.2.5.17.3 **Rolling Shutters & Steel Ventilators:** - All rolling shutters & steel ventilators shall be supplied and fixed as per standard specifications, relevant IS code and instructions of BHEL Engineer with all fixtures (i.e. handles, locks, latches, hooks etc.), glazing, fittings, holdfasts etc. Complete.

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Note: Contractor shall arrange for shop inspection for all steel doors, windows, rolling shutters & trusses etc. if fabricated outside the plant before delivery at site for Engineer's clearance.

2.2.5.18 **Painting:**

2.2.5.18.1 All the steel items such as doors, windows, ventilators, roof trusses, purlins, columns etc. shall be provided with one coat of red oxide primer & two coats of synthetic enamel paint of approved make, colour and quality. Paint shall be applied after fixing in position to achieve uniform finishing. Rates shall be quoted taking into account cost of painting for woodwork, steel work etc.

2.2.5.18.2 Three coats of white/color washing shall be provided uniformly on all wall surfaces as per IS specification.

2.2.5.18.3 PVC water tank of 1000 Litre capacity of reputed make shall be supplied and erected on steel staging and to be constructed on location decided by BHEL Engineer.

2.2.5.18.4 **Prior Approval from BHEL Engineer:**

Contractor shall take prior approval from BHEL Engineer for use of Sanitary items, FRP/RMP sheets, Overhead water tanks, Doors, Windows, ventilators, Cement, Brick, Steel, structural steel and for other items as required and necessary **manufacturer's test certificate (MTC)** and laboratory test as required by BHEL shall be arranged by contractor within their quoted rate.

2.2.5.19 **Approved make of materials:**

Sl. No.	MATERIAL	MAKE
1	STRUCTURAL/REINF. STEEL	SAIL/ TATA / JINDAL / BHUSHAN/ KAMDHENU / RATHI/ SHYAM STEEL OR EQUIVALENT
2	PPC / OPC 43	ACC/ BIRLA/ JAYPEE/ ULTRATECH/ AMBUJA/ LAFARGE OR EQUIVALENT
3	ENAMEL PAINTS	JOHNSON & NICHOLSON / BERGER/ ASIAN PAINT / NEROLAC/DULUX OR EQUIVALENT
4	GI & MS PIPES	SURYA/ PRAKASH/ JINDAL/ TATA OR EQUIVALENT
5	ELECTRICAL ACCESSORIES	

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a)	SWITCHES AND SOCKETS (MODULAR TYPE)	ANCHOR / MK / LK/ HAVELLS/ PHILLIPS OR EQUIVALENT
b)	WIRES / CBALES	KEI/ FINOLEX/ POLYCAB/ HAVELLS/ RR KABEL OR EQUIVALENT
6	ELECTRICAL EQUIPMENT	
a)	EXHAUST FANS	CROMPTON/ HAVELS/ BAJAJ/ ORIENT OR EQUIVALENT
b)	LIGHT FITTINGS	CROMPTON/PHILIPS /WIPRO/SYSKA OR EQUIVALENT
c)	WALL MOUNTING FANS	ORIENT/ CROMPTON/ USHA/BAJAJ OR EQUIVALENT
d)	CFL & FL LAMPS	PHILIPS/ OSRAM/ WIPRO/ BAJAJ/ SYSKA OR EQUIVALENT
e)	MCBs & MCB DBs (32 A)	MDS/ L&T-HAGGER/ RAJ.L/HAVELLS OR EQUIVALENT

Note: Approval of BHEL Engineer is to be obtained before procurement of materials, equivalent make may be used after approval from BHEL Engineer.

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Chapter – III: Time Schedule

3 Time Schedule

3.1 Initial Mobilization

After receipt of LOA, Contractor shall discuss with Project Manager / Construction Manager of BHEL regarding initial mobilization for Material Handling or for creation of Storage Facilities. Contractor shall start mobilization of necessary resources at site within 4 weeks of issue of Letter of Intent or as per the directive of BHEL Engineer. Such resources shall be progressively augmented to match the delivery schedule of materials or as per instruction of BHEL Engineer at site.

3.2 Mobilization for the scope of works Material Handling with Storage Facilities

The activities for material handling shall be started as per directions of BHEL Engineer. Contractor shall mobilize resources as per requirement to commence the works of Material Handling or to create Storage Facilities and further augment for carrying out entire scope of works.

3.3 Commencement of Contract Period and Schedule

BHEL Engineer will certify the actual date of start of work (zero date) after following:

- a) Adequate mobilization of manpower, T&P, other pre-requisites at site for start of works.
- b) Start of material handling or start of creation of storage facilities at site

The contractor has to subsequently augment his resources in such a manner that major milestones of scope of works shall be achieved as per detail activity wise schedule to meet below completion schedule, which will be discussed and finalized with successful bidder after their mobilization at site.

Sl. No.	Package	Contract period from Zero date
1	Material Handling Works as per Scope of Works at Sl. No. 2.1.	36 months from zero date.
2	Construction and development of 1 no. Open Storage Yard of approx. 2000 Sq.m as per Scope of Works at Sl. No. 2.2.1 above.	03 months in initial period.
3	Construction and development of 1 no. Closed Storage Shed of approx. 600 Sq.m. as per Scope of works at Sl. No. 2.2.2 above.	03 months in initial period.

Note:

Maintenance of Storage Facilities during entire contract period will be in scope of contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Time Schedule

3.4 **Contract Period and tentative schedule:**

The contract period for completion of entire scope of works work will be **36 (Thirty-six) Months** from the actual date of start (zero date).

3.5 **Completion of Works**

Once handing over of stored materials, spares & surplus material to customer/other agency and material reconciliation of total material handled by the contractor on completion of erection and commissioning of the project or as instructed by BHEL, then contract shall be considered as ‘‘completed’’.

3.6 **Guarantee Period**

The Guarantee period shall commence only after completion & handing over of storage facilities. The BHEL Engineer shall certify to the contractor the date on which the work is completed & handed over and the date thereof for commencement of Guarantee Period. The duration of Guarantee Period shall be as per GCC.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: Tentative Weight Schedule

4 Tentative Weight Schedule

4.1 Tentative weight schedule is as below:

S. No.	Description of Packages	Total Package Weight in MT
1	4 No. Vertical shaft turbine with accessories	1936
1 a)	Mechanical workshop	31
2	Digital Governing system and Accessories	87
3	Cooling water system	135
4	LP Compressed Air system	15
5	Drainage & Dewatering System	225
6	Main Inlet Valve (Spherical) and accessories	1044
7	2 Nos. Penstock Protection Valves (BFV Type)	528
8	Generator & its aux.	3420
9	Static Excitation System incl. excitation transformers	27
10	IPBD & its accessories	336
11	13 Nos., 1 ϕ , ODWF cooled, 92 MVA, 15.75/420/ $\sqrt{3}$, Gen. Transformers	1365
12	Auxiliaries Transformers (4 no. 630 kVA UAT, 2 no. 5000 kVA SAT, 2 no. 2500 kVA, 3 nos. 250 kVA, 2 nos. 3150 kVA, 2 nos. 630 kVA SST)	120
13	4 nos. 80 MVAR, 420 kV, 3 ϕ , 50 Hz shunt reactors complete with all fittings and accessories, 12 nos. 420 kV, 1000A Oil to SF6 bushing, 4 nos. 145 kV, 1000A neutral bushing, 2 Nos. NGR, 2 nos. 145 kV Lightning Arrester to be connected between NGR and Reactor.	425
14	Protection System	36
15	Control & Monitoring System	32
16	400 kV GIS System	363
17	400 kV Pothead Yard Equipment incl. 3 nos. 336 kV single phase Lightning Arrester, 3 nos. 400 kV, 1 ϕ Capacitive VT, 2 nos. 400 kV Class 2000A, 1 ϕ , Wave Trap & other equipments incl. GIS Hall Crane	385
18	400 kV XLPE Cable	102
19	Cable & Cable Trays	159
20	DC Supply System	136
21	415 V LTAC System	117
22	MV System incl. 33 kV & 11 kV switchgear system	77

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: Tentative Weight Schedule

23	Illumination system	50
24	EOT Cranes (2 nos. 250/50 MT for PH, 1 no. 150/30 MT BFV House , 1 no. 100/20 MT for Transformer Cavern, 50/10 MT for workshop crane)	450
25	Fire Detection & Fire Protection System	282
26	HVAC System	212
27	Elevators	7
28	DG sets (2 nos. 1000 kVA, 1 no. 625 kVA, 2 nos. 150 kVA, 1 no. 250 kVA)	56
29	Security and Surveillance system	10
30	PA & Communication System	19
31	Miscellaneous	100
Total		12286

- 4.2 Total material to be handled as per above tentative weight schedule shall be approx. 12000 MT.
- 4.3 Out of total materials, material handling of around 2000 MT is in scope of this contract.
- 4.4 Tentative Weight of the some of the major heavy/ODC consignment to be supplied from Manufacturing Units for material handling are:
- Heaviest consignment is EOT Crane Consignment/of weight, approx. 25 MT
- Max dimension consignment, Stator segment frame: 7.5 m x 4.2m x 3.2 m.
- 4.5 Weights and package size mentioned for the above items are tentative and may change during detail design. The contractor shall have handle the actual weight in the finally agreed rate.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: Rate Schedule/BOQ

5 Rate Schedule

Contractor shall fully understand equipment description and Scope of Work including Notes, Inclusion, Exclusion and Facilities before quoting. The scope of work and responsibility of the contractor as mentioned under these specifications shall be covered within the quoted rates.

Bidders shall quote Prices in INR or NPR for all the items and bids shall be evaluated after conversion in INR (if quoted in NPR).

Since the job shall be executed at site, bidders may 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.

Materials/items used for construction and development of open storage yard and closed storage sheds and temporary sheds will be the property of the contractor, which shall be required for the entire contract period after which the contractor shall be free to dismantle and take these items from site. However, maintenance of storage facilities during entire period will be in scope of contractor. No separate payment of any type shall be payable for dismantling and taking of these items from the area. Bidder shall consider this for quoting.

The tenderer shall quote lumpsum price for total scope of works under this tender in Part I: Rate Schedule only. No cutting/ erasing / over writing shall be done.

The lumpsum price quoted in the Part I: Rate Schedule by bidder shall be broken up and allocated against different items in the Part-II: Rate Schedule.

Part I: Price Schedule	
Description of work	Total Price in INR (A)
Total Price (A) in INR (In figures and words) for entire Scope of Works including Material handling with Storage Facilities for 4x225 MW Arun-3 HEP, Nepal.	

Note:

1. Price to be quoted above shall be exclusive of taxes & duties.
2. Evaluation of bids shall be done on total price ('A') against the above Rate Schedule only.
3. In case of any mismatch in Rate and amount on Price discrepancy, the same will be dealt as per clause No. 1.4 of GCC.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – V: Rate Schedule/BOQ

Part II: Price Schedule (Break up of Part I: Price Schedule)					
Item No.	Brief description of work	Unit	Qty.	Rate	Total Price in INR (Qty. X Rate)
1	Material Handling				
1 (a)	Materials Handling Works as per Scope of Works at Sl. No. 2.1	MT	2000	<u>(53% of A)</u> 2000 Sq.m.	53% of A
2	Storage Facilities				
2 (a)	Construction and development of Open Storage yard of approx.. 2000 Sq.m. as per Scope of Works at Sl. No. 2.2.1	Sq.m.	2000	<u>(10% of A)</u> 2000 Sq.m	10% of A
2 (b)	Construction and development of 600 Sq.m Closed Storage Shed including leveling and development of balance open space as per scope of works at Sl. No. 2.2.2	Sq.m.	600	<u>(37% of A)</u> 2000 Sq.m	37% of A

Note:

1. In case of Price Discrepancy, GCC Cl. 1.4 shall be referred.
2. The quantities indicated above are tentative and are liable to vary depending upon the site requirement. The contractor has to handle/construct/provide services for the actual quantities as per advice of BHEL Engineer. The final contract price shall be adjusted based on quantities actually to be executed at site & payment will be regulated for the same as per clause GCC 2.14. The contractor confirms that total price quoted above takes care of such variations during execution stage.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Terms of Payment & BBU

6 -Terms of Payment & BBU

6.1 Terms of Payment

- 6.1.1 Payment of Final agreed amount shall be in NPR through our NPR Currency account maintained in Nepal through e-payment system directly in the accounts to be opened in Nepal by contractor and as per details furnished by the contractor in the relevant annexure. Bank Charges and/or conversion charges upto payee account will be borne by contractor.
- 6.1.2 Although, the bids have been invited in INR (Indian Rupees) and shall be evaluated accordingly.
-100% payments shall be paid in NPR (Nepalese Rupees) in Nepal.
- 6.1.3 All payment shall be released subject to Reserve Bank of India guidelines and guidelines issued by Nepal Authority.
- 6.1.4 Retention amount shall be withheld from each RA bill as per provision of clause 2.22 of GCC.
- 6.1.5 Subject to any deduction which BHEL may be authorized to make under the contract, the contractor on the certificate of the Engineer at site is entitled for payment of item wise Quoted Rates/Total Price as per Part-II: Price Schedule of Rate Schedule, as explained hereunder-

TERMS OF PAYMENT		
Item No.	Brief Description of Work	Terms of Payment
1	Material handling works	
1 (a)	Materials handling works as per Scope of Works at Sl. No. 2.1	(i) 30 % of the Rate shall be payable on pro-rata basis after the materials are safely unloaded by using Hydra/Mobile Cranes of contractor, shifted to closed stores/open storage yard (if required) and updating in store material register / store stocks registers as per BHEL practices such as GR/LWB/loading advice/box packing slip subject to furnishing of following information along with the bills as per above clause <ul style="list-style-type: none"> ➤ Proof of claim lodged with Railways/Transporters in respect of shortage/open delivery. ➤ Material Management forms duly filled/Records generated in stocks (Stock

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Chapter – VI: Terms of Payment & BBU

		<p>registers and computers) and certified by Engineer.</p> <p>(ii) 15% of the Rate shall be payable on pro-rata basis after stacking /re-stacking safekeeping, in line with documents and records as per BHEL standards is ensured.</p> <p>(iii) 25% of the Rate shall be payable on pro-rata basis after verification in line with documents and records as per BHEL standards is ensured. Opening of cases/ repacking, wherever necessary (with contractors own T&P and labour), updation of verification details in material stock registers, submission of reports as per Material Management forms/specified formats for shortage/open delivery, lodging of police reports, if required, documents for insurance claims etc, and preparation of material receipt certificates in prescribed formats where ever applicable, within 4 week failure of which 20% of 25% shall be forfeited as certified by BHEL Engineer.</p> <p>(iv) 27 % of the Rate shall be payable on pro-rata basis on preservation, identification of material in ready to lift and loading on truck/trailer and handing over to erection contractor/other agency of BHEL.</p> <p>(v) 3 % of the Rate shall be payable on fulfillment and completion of contractual obligations.</p>
2	Storage Facilities	
2 (a)	Construction and development of Open Storage yard as per Scope of Works at Sl. No. 2.2.1	<p>A. 50 % of the Amount to be payable on the basis of Rate/MT Unloaded during the billing period (month):</p> <p style="text-align: center;">Rate – ((10% of A)x50%)/2000 MT</p>

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Chapter – VI: Terms of Payment & BBU

		<p>Note :The Total payment in the contract against the clause shall not exceed [(10% of A) X 50%]</p> <p><u>B. Balance 50% shall be payable as follows:-</u></p> <p>i. 10 % shall be payable for watch and ward expenses on monthly basis and shall start from the mobilisation and start of work on site and on certification of same by BHEL Engineer. Monthly Rate = [(10% of A)x10%]/36</p> <p>ii. 15 % shall be payable for storage facilities on monthly basis and shall start from completion and development of storage area on certification of same by BHEL Engineer. Monthly Rate = [(10% of A)x15%]/33</p> <p>iii. 25 % shall be payable for Maintenance Charges of storage area on monthly basis and shall start from completion and development of storage area on certification of same by BHEL Engineer Monthly Rate = [(10% of A)x25%]/33</p> <p>Note: The Total payment in the contract against the clause shall not exceed [(10% of A) X 10%]</p>
2 (b)	Construction and development of 600 Sq.m Closed Storage Shed including leveling and development of balance open space as per scope of works at Sl. No. 2.2.2	<p>A. 50 % of the Amount to be payable on the basis of Rate/MT Unloaded during the billing period (month):</p> <p>Rate – ((37% of A)x50%)/2000 MT</p> <p>Note :The Total payment in the contract against the clause shall not exceed [(37% of A) X 50%]</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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		<p><u>B. Balance 50% shall be payable as follows:-</u></p> <p>i. 10 % shall be payable for watch and ward expenses on monthly basis and shall start from the mobilisation and start of work on site and on certification of same by BHEL Engineer. Monthly Rate = [(37% of A)x10%]/36</p> <p>ii. 15 % shall be payable for storage facilities on monthly basis and shall start from completion and development of storage area on certification of same by BHEL Engineer. Monthly Rate = [(37% of A)x15%]/33</p> <p>iii. 25 % shall be payable for Maintenance Charges of storage area on monthly basis and shall start from completion and development of storage area on certification of same by BHEL Engineer Monthly Rate = [(37% of A) x 25%]/33.</p> <p>Note: The Total payment in the contract against the clause shall not exceed [(37% of A) X 10%]</p>
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Note:

1. In order to facilitate part payment, BHEL Site Engineer at his discretion may further split the contracted rates/percentages to suit site conditions, cash flow requirements according to the progress of work as per GCC 2.23.1 v).
2. Contractor shall submit bills for the work completed under the specification as per the terms of payment above, once in a month detailing work done during the month. The format for billing shall be approved by BHEL before raising invoices.
3. Maintenance of Storage Facilities during entire contract period will be in scope of contractor.

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Chapter-VII: Taxes and Other Duties

7 Taxes and Other Duties

- 7.1 Price quoted should be inclusive of all applicable Taxes/charges but **Excluding Value Added Tax (VAT) in Nepal**. The Contractor shall be responsible to pay all other taxes, fees, royalty, commission etc. which may be levied on the contractor in executing the contract as per prevalent laws at Nepal and compliance to all local regulations. In case BHEL is forced to pay any of such taxes, it shall be recovered from Contractor's bills or otherwise as deemed fit.
- 7.2 Value Added Tax (VAT) in Nepal shall be payable extra as per followings:-
- a) The Contractor is required to get registered with Tax Authorities of Nepal and shall submit to BHEL documentary evidence for such registration.
 - b) The Contractor has to submit VAT compliance invoice as per prevalent VAT laws in Nepal. Any denial of input credit to BHEL or arising of any tax liability on BHEL due to non-compliance of VAT Laws of Nepal by the contractor in any manner, will be recovered along with liability on account of interest and penalty (if any) from the payments due to the contractor.
 - c) The Contractor may be required to submit documentary evidence for deposit of VAT with tax authorities as per prevalent laws in Nepal.
 - d) The Contractor shall be solely responsible for discharging his VAT liability as per prevalent VAT laws in Nepal and BHEL will not entertain any claim of VAT/Interest/penalty or any other liability on account of failure of contractor in complying the provisions of VAT laws in Nepal or discharging the VAT liability in a manner laid down thereunder.
 - e) The Contractor shall obtain prior written consent of BHEL before billing the amount towards such taxes. Where prevalent VAT laws in Nepal permit more than one option or methodology for discharging the liability of tax/levy/duty; the contractor shall approach BHEL before choosing any option to discharge his tax liability. BHEL shall have the right to direct the contractor to adopt the appropriate option considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability.
The Option chosen by BHEL shall be binding on the contractor for discharging the obligation of BHEL in respect of the tax liability to the contractor.
- 7.3 TDS / Withholding Tax as applicable as per prevalent Laws in Nepal shall be deducted.
- 7.4 For plant and equipment manufactured inside Nepal, all taxes and duties as applicable for destination site/state on all items of supply from Contractor are included in the Contract price.
- 7.5 Octroi /entry tax as applicable for destination site on all items of supply including bought-out finished items, which shall be dispatched directly from the sub-vendor's works (within or outside Nepal) to the Project site is included in the Contract price.
- 7.6 In case of local supplies, all Customs duties/Bhansar and Levies, Excise Duties, Sales Tax payable on raw materials, components, sub-assemblies and any other items used

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Chapter-VII: Taxes and Other Duties

for their consumption or dispatched directly to the BHEL / Customer from their sub-Contractor (i.e. sale-in-transit) is included in the Contract price and any such taxes, duties, levies additionally payable will be to Contractor's account and no separate claim on this behalf will be entertained by the BHEL.

- 7.7 If any plant and equipment required to complete the facilities, is manufactured outside Nepal, the Contractor shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Nepal.

In such case, Customs duties/ Bhansar on the equipment and materials covered in the Contract to be imported into Nepal against BHEL / Customer's Import License and which will become the property of the BHEL / Customer under the Contract, shall be to the contractor's account and shall be paid directly by the Contractor to Government of Nepal or concerned authorities.

In terms of Project Development Agreement signed between GoN and Customer on 24.11.2014, the GoN shall exempt import of cement, iron and steel products from payment of customs duty, subject to compliance of norms of Investment Board of Nepal (IBN). The amount of exemption shall be limited to 50% of the rate of custom duty prevailing as on the date of PDA or the actual rate of custom duty, whichever is lower. The Contractor shall take all steps necessary for obtaining the above exemption and coordinate with concerned authorities of GoN. BHEL shall not be liable if Contractor fails to obtain such exemptions from GoN.

In addition to above bidders are requested to consider exemptions as per Hydro Development Policy of Nepal 2001 which is available at www.doed.gov.np

- 7.8 Except as otherwise specifically provided in the Contract, the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor, its Sub-Contractors or their employees by all municipal, state or national government authorities in connection with the plant and equipment supplied in and outside of the country where the Site is located.

- 7.9 If any tax exemptions, reductions, allowances or privileges may be available to the Contractor in the country where the Site is located, BHEL / Customer shall use its best endeavors to enable the Contractor to benefit from any such tax savings to the maximum allowable extent. However, in the event of failure on part of the contractor same shall not be compensated on this account by BHEL.

- 7.10 For payment/reimbursement of Value Added Tax or any other tax included in the contract price, in respect of dispatches made directly from Contractor's Works, invoices raised by the Contractor shall be accepted as documentary evidence.

- 7.11 For the purpose of the Contract, it is agreed that the Contract Price specified in Letter of Award/ Contract Agreement is based on the taxes & duties, levies and charges

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Taxes and Other Duties

prevailing at the date twenty eight (28) days prior to the last date of bid submission in the country where the site is located (hereinafter called "Tax" in this GCC Sub – Clause). If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of the Contract, which was or will be assessed on the Contractor in connection with performance of the Contract, an equitable adjustment of the Contract price shall be made, subject to documentary evidence, to fully take into account any such change by addition to the contract price or deduction there from, as the case may be.

These adjustments would be applicable to direct transactions between BHEL and the Contractor as well as on finished bought-out items (Sale-in-transit) supplied directly by the sub-vendor to BHEL but shall not be applicable on procurement of raw materials, intermediary components etc. by the sub-vendor and Contractor.

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/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of price bid. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

Such adjustment in tax liability will only be with respect to the values and rates quoted by the bidder in relevant Schedules.

- 7.12 The Contractor shall be solely responsible for the taxes that may be levied on the Contractor's persons or on earnings of any of his employees and shall hold BHEL indemnified and harmless against any claims that may be made against BHEL / Customer. BHEL does not take any responsibility whatsoever regarding taxes under the Income Tax Act of Nepal, for the Contractor or his personnel. If it is obligatory under the provisions of the Income Tax Act of Nepal, deduction of Income Tax at source shall be made by the BHEL.
- 7.13 The admissibility of VAT, taxes and duties referred in this chapter or elsewhere in the contract is limited to direct transactions between BHEL & its Contractor. BHEL is not responsible for any liability that may arise due to any transaction beyond the direct transaction between BHEL & its contractor.
- 7.14 The contractor should submit its invoices in such a manner enabling BHEL for availment of Input Tax Credit of all the taxes whether included or excluded in the contract price, wherever applicable. Any denial of input credit to BHEL or arising of any tax liability on BHEL due to non-compliance of any Applicable Tax Laws in Nepal by the contractor in any manner, will be recovered along with liability on account of interest and penalty (if any) from the contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VIII: Facilities in the scope of Contractor/BHEL

8 Facilities in the scope of Contractor/BHEL

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
1.1.0	ESTABLISHMENT			
1.1.1	FOR CONSTRUCTION PURPOSE:			
A	Land for Storage Facilities (Open and Closed storage shed)	Yes		Approx. 3000-sq.m land at two/three location will be made available for construction of Open storage yard, Closed storage shed.
B	Facilities in closed storage shed for storage & preservation of materials.		Yes	As per TCC.
C	Space for bidders stores, canteen and office.		Yes	Shall be arranged by bidder.
C.1	Construction of bidder's office, canteen and bidder storage building including supply of materials and other services.		Yes	
C.2	Bidder's all office equipment, office / store / canteen consumables.		Yes	
C.3	Canteen facilities for the bidder's staff, supervisors and engineers etc.		Yes	
C.4	Fire fighting equipments like buckets, extinguishers etc.		Yes	
C.5	Fencing of bidder storage area, office, canteen etc.		Yes	
1.1.2	FOR LIVING PURPOSES OF THE BIDDER			
A	Area for labour colony		Yes	To be arranged by bidder
B	Living accommodation		Yes	To be developed by the bidder.
1.2.0	ELECTRICITY			
1.2.1	Electricity For construction purposes			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VIII: Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
1.2.1.1	Single point source		Yes	Construction power to be arranged by bidder through installation of suitable capacity of DG set by them or getting connection from Nepal authority, if available.
1.2.1.2	Consumption charges for construction Power.		Yes	To be borne by bidder.
1.2.1.3	Further distribution for the work to be done which include supply of materials and execution.		Yes	Further distribution upto equipments /wok area to be done by the bidder.
1.2.1.4	Maintenance of lighting, distribution boards at suitable working area.		Yes	
1.2.1.5	Providing of the consumables such as sockets, switches, MCCB, bulbs etc.		Yes	
1.2.2	Electricity for BHEL's stores			
1.2.2.1	Single point sources		Yes	
1.2.2.2	Distribution from single point including supply of materials and service.		Yes	
1.2.2.3	Supply, installation and connection of material of energy meter, if required including operation and maintenance.		Yes	
1.2.2.4	Payment of electricity consumption		Yes	
1.2.2.5	Duties and deposits including statutory clearances for the above.		Yes	
1.2.2.6	Living facilities for office use including charges.		Yes	
1.2.2.7	Maintenance of lighting, distribution boards at suitable working area.		Yes	
1.2.2.8	Providing of the consumables such as sockets, switches, MCCB, bulbs etc.		Yes	
1.2.2.9	Demobilization of the facilities after completion of works.		Yes	
1.2.3	Electricity for the bidder office, stores, canteen etc. which include:			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VIII: Facilities in the scope of Contractor/BHEL

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
	PART I			
1.2.3.1	Single point sources		Yes	
1.2.3.2	Distribution from single point including supply of materials and service		Yes	
1.2.3.3	Supply, installation and connection of material of energy meter including operation and maintenance		Yes	
1.2.3.4	Duties and deposits including statutory clearances for the above		Yes	
1.2.3.5	Payment of electricity consumption, if any		Yes	
1.2.3.6	Demobilization of the facilities after completion of works		Yes	
1.2.4	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc. on the above lines			
1.2.4.1	Single point sources		Yes	
1.2.4.2	Distribution from single point including supply of materials and service		Yes	
1.2.4.3	Supply, installation and connection of material of energy meter including operation and maintenance		Yes	
1.2.4.4	Duties and deposits including statutory clearances for the above		Yes	
1.2.4.5	Payment of electricity consumption, if any		Yes	
1.2.4.6	Demobilization of the facilities after completion of works		Yes	
1.3.0	WATER SUPPLY			
1.3.1	For construction purposes:			
1.3.1.1	Making the water available at single point.		Yes	To be arranged by bidder by their own cost.
1.3.1.2	Further distribution as per the requirement of work including supply of materials and execution.		Yes	
1.3.2	<u>Water supply for bidder's office, stores, canteen etc</u>			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VIII: Facilities in the scope of Contractor/BHEL

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
	PART I			
1.3.2.1	Making the water available at single point.		Yes	
1.3.2.2	Further distribution as per the requirement of work including supply of materials and execution.		Yes	
1.3.3	<u>Water supply for BHEL stores</u>			
1.3.3.1	Making the water available at single point		Yes	
1.3.3.2	Further distribution as per the requirement of work including supply of materials and execution		Yes	
1.4.0	LIGHTING			
1.4.1	For construction work (supply of all the necessary materials) 1. At the preassembly area 2. At the construction site /work area.		Yes	
1.4.2	For construction work (execution of the lighting work/ arrangements) 1. At the preassembly area 2. At the construction site /work area.		Yes	
1.4.3	Maintenance of Lighting materials such as lamps, extension boards, hand lamps, cables etc. for stores (open and closed)		Yes	
1.4.4	Providing the necessary consumables like bulbs, switches, etc. during the course of construction.		Yes	
1.4.5	Lighting for the living purposes of the bidder at the colony / quarters for his use.		Yes	
1.5.0	Communication Facilities for Site Operations of the Bidder			
1.5.1	Telephone, fax, internet, intranet, e-mail etc.		Yes	
2.0	CONSTRUCTION FACILITIES			
2.1	Engineering works for construction:			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VIII: Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
2.1.1	Providing the construction drawings	Yes		BHEL shall provide tentative drawings only for tendering purpose only.
2.1.2	Drawings for construction methods / DETAILED DRAWINGS as per site requirement		Yes	In consultation with BHEL.
2.1.3	As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site		Yes	
2.1.4	Shipping lists / procurement plan etc. for reference and planning the activities		Yes	
2.1.5	Preparation of site construction schedules and other input requirements		Yes	
2.1.6	Review of performance and revision of site construction schedules in order to achieve the end dates and other commitments	Yes	Yes	
2.1.7	Weekly construction schedules based on Sl. No 2.1.5		Yes	
2.1.8	Daily construction / work plan based on Sl. No 2.1.7		Yes	
2.1.9	Periodic visit of the senior official of the bidder to site, review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
2.2	Preparation of Preassembly Bay		Yes	As per Work Requirement.

Note:

1. It is the responsibility of the contractor to construct labour colony/temporary sheds for his use and to dismantle and clear the site after completion of work or as and when required, as a part of his scope of work.
2. The bidder shall have to arrange diesel, lubricants & consumables for the DG sets for Construction Power within the finally accepted/contract price.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Facilities in the scope of Contractor/BHEL

3. Contractor shall lay network of pipelines at his cost to various work spots requiring construction water.
4. Provision of distribution lines of electrical power from the central points to the required place with proper distribution boards observing the applicable safety rules, shall be done by the contractor, supplying all the materials like cables, distribution board, switch boards, TPN, CBS, ELCBS/ MCCBS/ Copper/ Brass clamps, copper conductor, change over switches pipes etc. at his own cost. The contractor shall adjust his working shifts / hours accordingly and deploy additional manpower if necessary so as to achieve the targets.
5. Lighting arrangement such as flood lights, hand lamps and area lighting shall be arranged by the contractor at storage area etc. within finally accepted rates.
6. On completion of work or as and when required by BHEL, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and leveled and debris shall be removed as per instruction of BHEL by the contractor at his cost. In the event of his failure to do so, the Engineer will be done it and expenses incurred shall be recovered from the contractor along with prevailing overhead. The decision of BHEL Engineer in this regard shall be final.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-IX: T&Ps and MMEs to be deployed by Contractor

9 T&Ps and MMEs to be deployed by Contractor:

9.1 Indicative List of Tools and Plants for Material Handling to be arranged by the contractor at his own cost:

Sl. No.	Item	Qty. (No.)
1	Hydra Crane 14 T	1 No.
2	Mobile Hydraulic Crane 30 T	1 No.
3	DG sets 5 kVA	2 No.
4	Slings (Dia 10, 16, 25, 32, 40, 50 mm)	Total Qty : 12 Nos.
5	Pulling & Lifting machines 5T (manual/motorised)	2 Nos.
6	Chain Pulley blocks (Lifting capacity : 2T, 5T, 10T, 20T)	2 Nos. of each lifting capacity
7	D-Shackles & Eye Bolt (2T, 5T, 10T, 20T, 40T)	4 Nos. of each load carrying capacity
8	Hydraulic / Mechanical Jacks of various capacities (5-10-20-100T)	2 Nos. of each type and load carrying capacity
9	Wire Ropes (Dia 16 mm, 20 mm & 25 mm)	50 meter of each dia.
10	Fork lift – 3T	1 No.
11	Manila Ropes / Nylon type lifting belts	10 Nos
12	Turn Buckle (2T, 5T, 10T etc) & chain shackles	10 Nos.
13	Set of Carpenter tools	4 Sets
14	Crow Bar (0.5, 1.0, 1.5 meter)	10 Nos. of each length
15	Set of preservatives	As per requirement
16	Wooden Sleepers/Concrete Sleepers assorted size (Dim: 3’x6’’x6’’)	As per requirement

Note:

1. The above list specifies only major T & P (may not be complete in items or numbers) to be deployed by the contractor. All additional / other tools and plants

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX: T&Ps and MMEs to be deployed by Contractor

required for timely and satisfactory completion of the project/facility shall also be deployed by the contractor within the finally accepted rates/ contract prices.

2. Custom Clearance, if any for T&Ps required for execution of the contract, shall be in arranged by contractor. However, BHEL shall assist bidder for documentation requirement only to get custom clearance. Customer Duty/BG Charges, if any for custom clearance shall be borne by bidder.
3. Running and operator cost all T&Ps including 1 no. 30 MT Mobile Crane, 1 no. 14 MT Hydra material handling materials shall be in scope of the contractor.
4. The bidder shall have to arrange operator(s), lubricants, consumables, running diesel charges etc. for running the DG set during works of material handling within the finally accepted/contract price.
5. Consignments which cannot be handled by above cranes of contractor/BHEL, has to be unloaded / handled by sleeper jack method. Alternatively suitable capacity crane at their own cost, is to be arranged by contractor for handling such consignments. The bidders are required to take note of it while submitting their offer.
6. In View of existing transportation infrastructure in Nepal, the bidder shall have to maintain the buffer stock of all consumables and mandatory spares for repair of T&Ps in sufficient quantity, at site. The contractor has to make provisions of above within the finally agreed price of the contract.
7. Other terms and conditions regarding above shall be as per the special condition of the contract clause no. SCC 4.2.1 (T&Ps and MMEs to be provided by the Contractor).

9.2 Tool & Plants (T&Ps)- Indicative List Of T & Ps for Storage Facilities.

Sl. No.	EQUIPMENT
1	CONCRETE MIXER M/C OF SUITABLE CAPACITY
2	CONCRETE VIBRATORS
3	JCB/ EXCAVATOR/ DOZER/ JACK HAMMER WITH COMPRESSOR.
4	TRUCKS/LORRIES/TRACTORS/DUMPERS
5	WATER TANKER
6	DEWATERING PUMP
7	WINCHES
8	WELDING MACHINES

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX: T&Ps and MMEs to be deployed by Contractor

9	TYRE MOUNTED MOBILE CRANES (30 MT) / HYDRA (14MT)
Notes :	<ol style="list-style-type: none"> 1 The above list is only indicative and these T&Ps may not be required for entire contract period but contractor will ensure that these T & Ps are provided as per need. Contractor will assess actual quantity and period of requirement based on his experience. Contractor has to mobilize / maintain adequate numbers of equipment for meeting the work schedule and intermediate milestones as notified by BHEL Engineer. 2 Other terms and conditions regarding T&Ps / MMEs please also refer clause for T&Ps & MMEs in SCC. 3 No idle charges shall be payable during contract/extended period if any. 4 All the tools and plants required for this scope of work are to be arranged by the contractor within the quoted rates during the contract/extended period if any. The list is suggestive in nature. Any additional T&Ps required for completion of scope is to be arranged by the contractor without any extra cost. 5 If work gets delayed due to non-availability of T&Ps, BHEL reserves the right to get the work done at the risk and cost of contractor without prejudice to rights of BHEL as in GCC.

9.3 Monitoring and Measuring Equipments (MMEs)- Indicative List of MMEs

4.2	<u>MONITORING AND MEASURING EQUIPMENTS (MMEs)</u> - INDICATIVE LIST OF MMEs
Sl. No.	EQUIPMENT
1	TOTAL STATION
2	AUTO LEVEL
3	MEASURING TAPE
4	PLUMB BOBS
5	COMPRESSION STRENGTH TESTING EQUIPMENT
6	CONSTRUCTION MATERIAL TEST EQUIPMENT
7	CONCRETE CUBE MOULD (150mm X 150mm X 150mm)
8	CONCRETE SLUMP CONE
9	COARSE AGGREGATE SIEVES & SAND SIEVES
10	SIEVE SHAKER
Notes:	<ol style="list-style-type: none"> 1. The above list is only indicative and these MMEs may not be required for entire contract period but contractor will ensure that these T & Ps are provided as per need. Contractor will assess actual quantity and period of requirement based on his experience. 2. Other terms and conditions regarding T&Ps / MMEs please also refer clause for T&P& MMEs in SCC.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX: T&Ps and MMEs to be deployed by Contractor

	<p>3. All the MMEs required for this scope of work are to be arranged by the contractor within the quoted rates during the contract/extended period if any. The list is suggestive in nature. Any additional MMEs required for completion of scope is to be arranged by the contractor without any extra cost.</p> <p>4. No idle charges shall be payable during contract/extended period if any.</p> <p>5. Contractor should set up the field laboratory with facilities required for material & concrete testing, alternatively all the materials used and proposed to be used for construction may be tested in an authorized and accredited laboratory outside and the material test reports shall be furnished to BHEL Engineer before use of material in work.</p> <p>6. If work gets delayed due to non-availability of MMEs, BHEL reserves the right to get the work done at the risk and cost of contractor without prejudice to rights of BHEL as in GCC.</p>
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- 9.4 No recovery will be effected from the contractor, if any of the listed T&P/IMTE in this chapter is not needed for proper execution of the work, provided contractor has not utilized BHEL free issued T&P for completing the work.
- 9.5 In case T&P as per this chapter or as per any additional requirement as decided by BHEL is required for proper execution of work, contractor will be communicated in writing regarding such requirement by giving 15 days of notice for deployment of the T&P/IMTE etc. The same may also be mutually decided in monthly Form F-14.
- 9.6 If the respective work is completed before the schedule deployment period as provided by site, then no recovery shall be applicable.
- 9.7 In case of requirement (given by site), if the T&P is delayed or deployed for shorter period or had abnormal down time and BHEL had to deploy either its own T&P or from outside for completion of work, the recovery shall be done from the contractor. The method of recovery shall be as under:
- i. In case BHEL had to deploy its own T&P, hire charges of T&P applicable for Outside agencies as per extant BHEL guidelines for “Hire charges on issue of Capital Tools & Plants” shall be recovered.
 - ii. In case BHEL had to deploy the T&P from outside, actual hiring cost plus applicable overheads shall be recovered.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
**Chapter-X: T&Ps and MMEs to be deployed by BHEL on sharing
basis**

10 T&Ps and MMEs to be deployed by BHEL on sharing basis

NOT APPLICABLE

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI: Any other requirement

11 Any Other Requirement

- 11.1 Price shall remain firm throughout the contract period, including extended period, if any.
- 11.2 In case the contractor opts to furnish Bank Guarantee (BG) as a part of Security Deposit, the BG shall be issued preferably through any of the Schedule Bank in India. The BG may also be accepted from Foreign Bank at the sole discretion of BHEL, provided the BG is duly endorsed by any of the Indian Schedule banks.
- 11.3 Security Deposit amount as per GCC 1.10 can also be accepted in equivalent NPR.
- 11.4 EMD amount as per GCC 1.9 can also be accepted in equivalent NPR.
- 11.5 Unless otherwise provided in the Contract, all amount payable or acceptable in INR, can also be payable or acceptable in equivalent NPR.
- 11.6 For conversion the currency, 1 INR (Indian Rupees) = 1.6 NPR (Nepalese Rupees) and vice versa shall be considered.
- 11.7 The contractor in the event of execution of works, shall adhere to the law and the local provisions regarding the license to carry out an industrial activity, the conditions for employment of national and expatriate staff, import license for equipments and materials, use of radio-telephone, etc. The Contractor will fulfill the obligations arising, even indirectly, from the decisions or orders of the Public Authorities and regulations established by the Client. The provisions regarding safety of the labor, policy of hazardous, unhealthy or inconvenient establishments and hygiene of workers as per local laws are also to be adhered to during execution of the project.
- 11.8 Contractor has to fulfill quality requirement as per Chapter-VIII of Special Condition of Contract (SCC). In case of any gap in fulfilling these requirements by the contractor, financial penalty shall be imposed on the contractor with the rate mentioned in the “MEMO for penalty imposition against non-compliance in Quality area” enclosed as **Annexure-IV**. Penalty may also be accepted in equivalent NPR.
- 11.9 If any fine to be imposed against noncompliance of Health, Safety and Environment Plan for Site Operation by Subcontractors, is also acceptable in equivalent NPR.
- 11.10 **Labour:**
- 11.10.1 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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI: Any other requirement

- Institute/Industrial Training Institute/National Academy construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/certified by State/Central Government/Nepal 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 BHEL Engineer 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 BHEL Engineer 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 BHEL Engineer as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.
- 11.10.2 Unless otherwise provided in the Contract, the Contractor shall be responsible for the recruitment, transportation, accommodation and catering of all labor, local or expatriate, required for the execution of the Contract and for all payments in connection therewith.
- 11.10.3 Contractor shall be responsible for providing all other necessary facilities to staff and workmen not limited to water inside the rooms, proper sanitation, transport, medical facilities etc. at his own cost as required under various labour laws and statutory rules and regulations in Nepal.
- 11.10.4 The Contractor shall be responsible for obtaining all necessary permit(s) and/or visa(s) from the appropriate authorities for the entry of all labor and personnel to be employed on the Site into the country where the Site is located.
- 11.10.5 The Contractor shall at its own expense provide the means of repatriation to all of its and its Subcontractor's personnel employed on the Contract at the Site to their various home countries. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults in providing such means of transportation and temporary maintenance, the Employer may provide the same to such personnel and recover the cost of doing so from the Contractor.
- 11.10.6 The Contractor shall at all times during the progress of the Contract use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst its employees and the labor of its Subcontractors.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

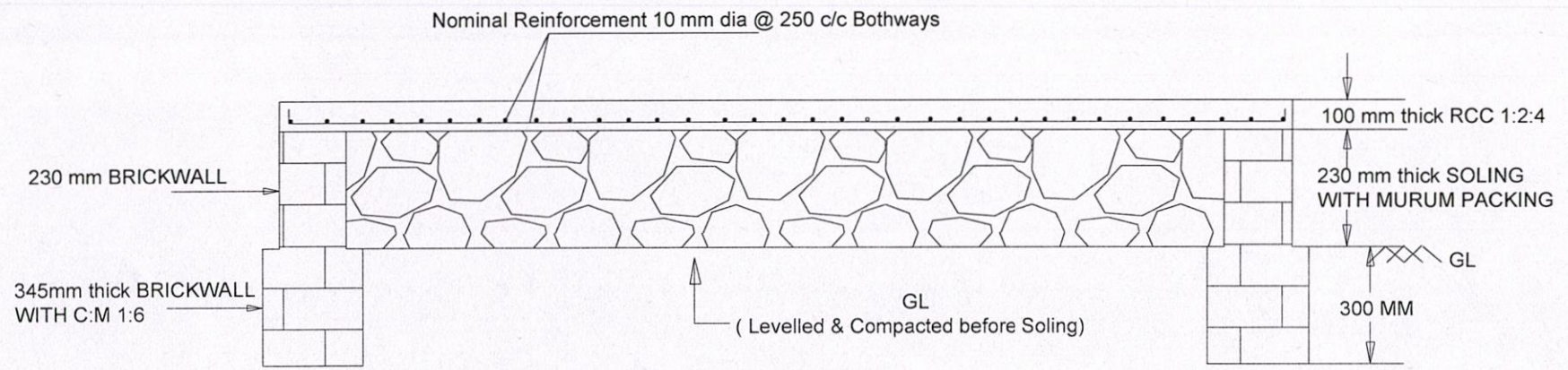
Chapter-XI: Any other requirement

- 11.10.7 The Contractor shall, in all dealings with its labor and the labor of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor.
- 11.10.8 The bidder shall use maximum Nepali resources and give first consideration and full and fair opportunity to technically and commercially qualified Nepalese citizens, materials and firms provided that in each case, the use of such Nepali resources meet the quality, quantity and availability requirements of the Company.
- 11.10.9 The bidder shall comply with the Laws of Nepal including the Labour Act, 2048 and Labour Regulation, 2050.
- 11.11 **Provident Fund/SSF**
Contractor shall comply with provision of Social Security Fund, Social Security Act 2075 (2017) any other provident provisions and other relevant labour laws applicable for working in Nepal. The contractor shall be responsible for all compliances under these laws. Contractor shall deduct the necessary amount towards this fund, contribute as employer the required amount as per provisions and further duly deposit the amount in the fund as per Nepal laws. BHEL may require furnishing of documentary evidence of the compliances. Any loss or expense arising to BHEL because of non-compliance shall be borne by the Contractor.
- 11.12 Contractor is to be registered with the local authorities in Nepal, if required.

List of E&M Components:

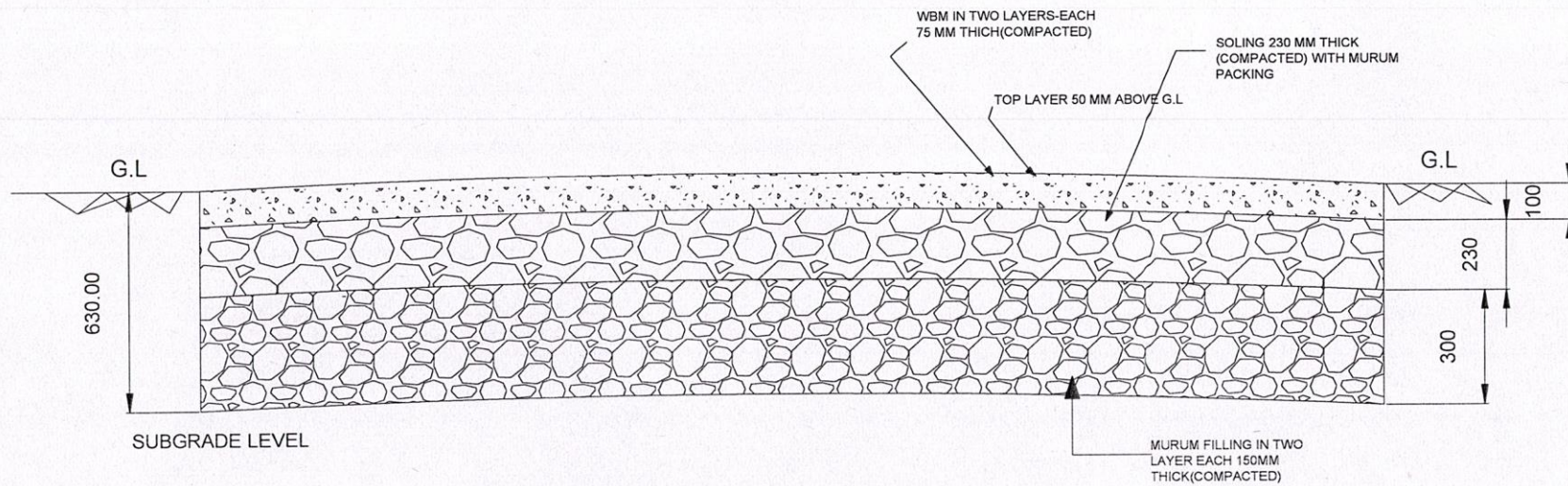
- 1) 4 sets of vertical Francis Turbines & accessories
- 2) 1 set of Cooling Water System for complete powerhouse
- 3) 1 set of LP Compressed Air System for complete Powerhouse
- 4) 1 set of Drainage & Dewatering System
- 5) 4 sets of Governing System & accessories
- 6) 4 set of MIV and associated auxiliaries
- 7) 2 sets Penstock Protection Valves and auxiliaries
- 8) 4 sets 15.75 kV, 50 Hz, 3 phase, semi-umbrella type Generator & associated auxiliaries with 4 sets of water sprinkler type fire protection system.
- 9) 4 sets of Static Excitation system including 4 sets dry type excitation transformers and accessories.
- 10) 4 sets of 17.5 KV Isolated Phase Bus ducts including CTs & PTs, LAVT & NG cubicles and supporting structures.
- 11) 13 Nos. (Including 1 spare), 92 MVA, 15.75/420 kV, 1 ϕ GSU Transformers & accessories.
- 12) Auxiliaries Transformers
 - a. 4 nos. 630 kVA, 15.75/0.433 kV, 3 ϕ , cast resin, dry type Unit Auxiliary transformers with accessories suitable for indoor installation
 - b. 2 nos. 5000 kVA, 15.75/11 kV, 3 ϕ , cast resin, dry type Station Auxiliaries Transformers along with accessories suitable for indoor installation
 - c. 2 no. 2500 kVA, 11/0.433 kV, 3 ϕ , cast resin, dry type Station Service Transformer (SST) along with accessories suitable for indoor installation at PH
 - d. 3 no. 250 kVA, 33/0.433 kV, 3 ϕ , cast resin, dry type Station Service Transformer (SST) along with accessories suitable for indoor installation at BFV
 - e. 2 no. 3150 kVA, 11/33 kV, 3 ϕ , dry type Station Service Transformer (SST) along with accessories suitable for indoor installation at Switchyard
 - f. 2 no. 630 kVA, 33/0.433 kV, 3 ϕ , dry type Station Service Transformer (SST) along with accessories suitable for indoor installation at Dam
- 13) 4 nos. 80 MVAR, 3 ϕ , 420 kV ONAN cooled, outdoor type switchable shunt reactor, NGR, LA etc. for 400 kV bus
- 14) 1 lot of protection system incl. 4 sets of Unit protection panels for generator protection, generator transformer protection, Excitation Transformers, UAT, SAT and 400 kV XLPE Cable, Line protection, Line Reactor Protection, Bus Reactor Protection, Bus coupler Protection, control Panels, Bus bar protection, miscellaneous components and auxiliaries.
- 15) 1 lot Control & Monitoring System
- 16) Switchyard
 - a. 1 lot 420 kV Gas insulated Substation
 - b. 1 lot 420 kV Outdoor Pothead Yard Equipment
- 17) 1 lot 420 kV XLPE Cable
- 18) 1 lot of Cabling system incl. power cable, control cable, cable trays & accessories
- 19) 1 lot 220 V DC System for Powerhouse, PPV House, Dam Site & Switchyard

- 20) 1 lot AC Auxiliaries (LTAC) system for Powerhouse, Surge shaft, Pothead yard, PPV House, TRT outfall, Dam & Intake loads etc.
- 21) 1 lot of MV System incl. 11 kV Switchgear System consisting 2 sets of board one at Powerhouse and other at Switchyard, 33 kV Switchgear system consisting 2 sets board one at Dam and other at Switchyard.
- 22) 1 lot of Plant Illumination system
- 23) 2 No. 250/20/10 MT EOT Cranes for PH, 1 no. 150/30 MT EOT Crane for BFV House, 1 no. 100/20 MT EOT Crane for Transformer Cavern, 1 no. 10 MT EOT Crane for GIS Building, 1 no. 50/10 MT EOT Crane for Workshop building & its miscellaneous items
- 24) 1 lot Fire-fighting system at Power house, transformer cavern, GIS & Switchyard area etc.
- 25) 1 lot HVAC System for power house, transformer cavern, GIS Building area, Dam site area, control room area for PH etc.
- 26) 1 lot of elevators for power house complete with control and accessories
- 27) 1 lot DG sets incl. 2 nos. 1000 kVA DG sets at Switchyard, 1 no. 625 kVA DG set at Dam intake gates, 2 nos. 150 kVA DG sets at Surge shaft and TRT outfall and 1 no. 250 kVA SG set at PPV House with miscellaneous components and auxiliaries system
- 28) 1 lot of security and surveillance system incl. Access Control system , CCTV System etc. at indoor and outdoor area of plan incl. power house complex, transformer hall, TRT area, surge shaft area, valve house area, switchyard area, dam complex area and HRT gate area.
- 29) 1 lot of PA & Communication system.
- 30) Any other items not covered above but required for project completion.



RAISED CONCRETE PLATFORM 12 M WIDE

PROJECT: TYPICAL SECTION
TITLE: RAISED CONCRETE PLATFORM 12M WIDE
DRG. NO. : BHE/PW/OY- 02 A



SECTIONAL DETAILS OF 6 M WIDTH WBM ROAD

ALL DIMENSIONS ARE IN MM

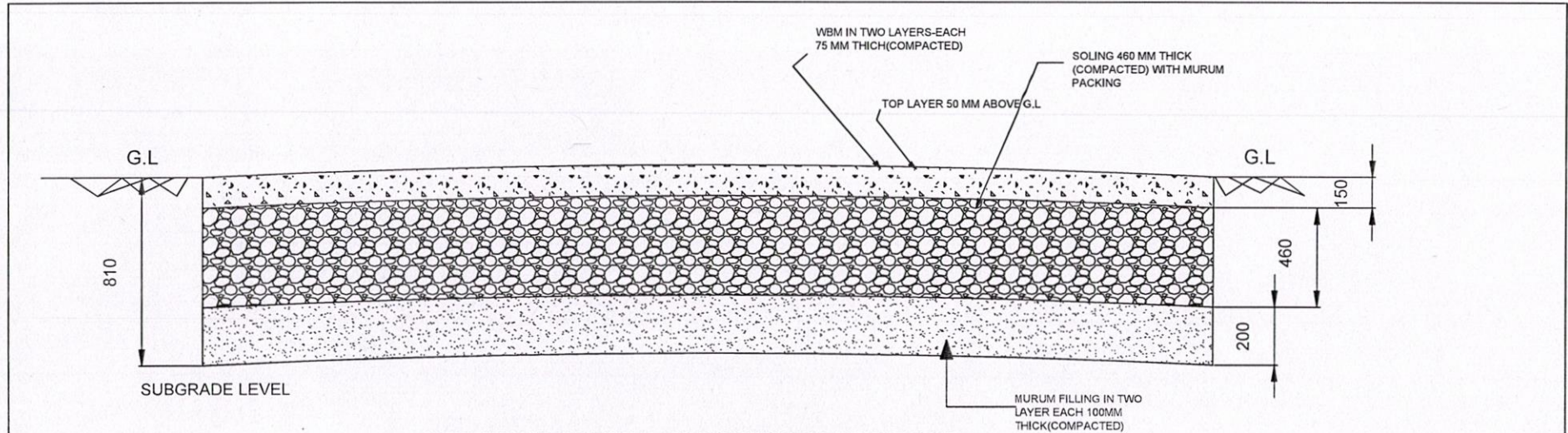
NOTE:

- 1)CAMBER SHALL BE MAINTAINED FROM THE SUBGRADE LEVEL
- 2)IN CASE SOFT/HARD ROCK MAT WITH SUBGRADE IS FOUND THEN 150MM THICK MURUM SHALL BE LAID IN PLACE OF 300 MM THICK MURUM FILLING.

PROJECT: TYPICAL SECTION

TITLE: SECTION OF 6 M WIDTH WBM ROAD

DRG. NO. : BHE/PW/OY- 02B

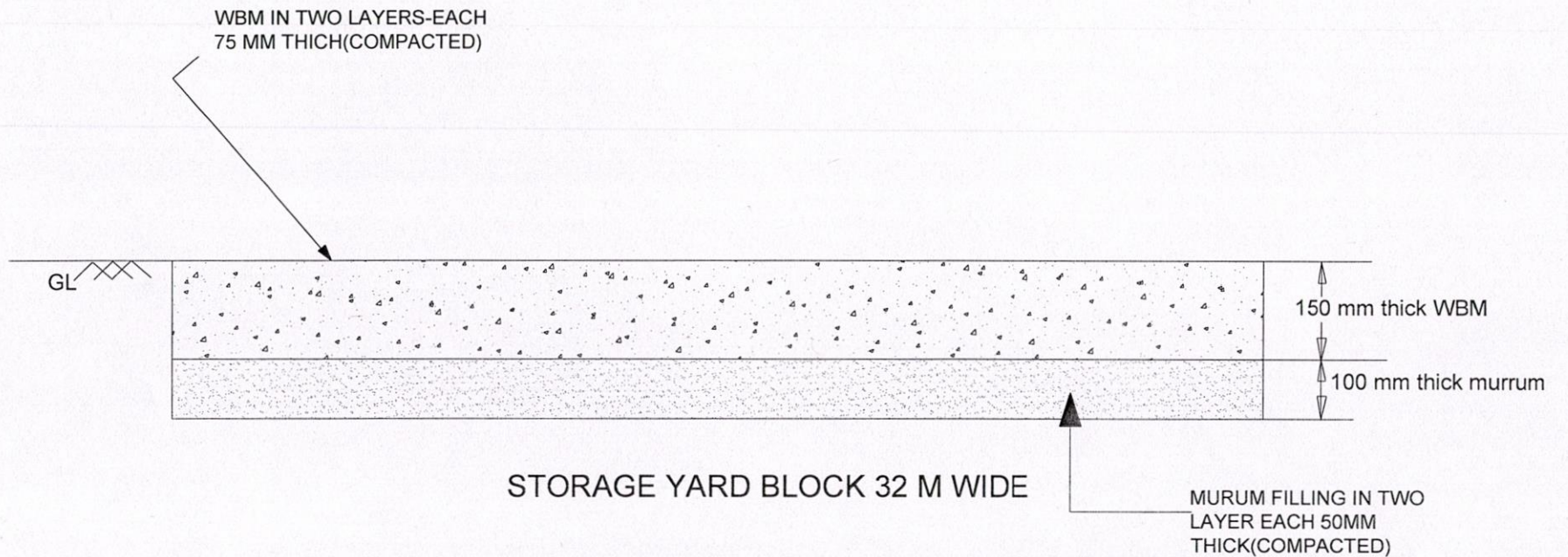


SECTIONAL DETAILS OF 8 M WIDTH WBM ROAD

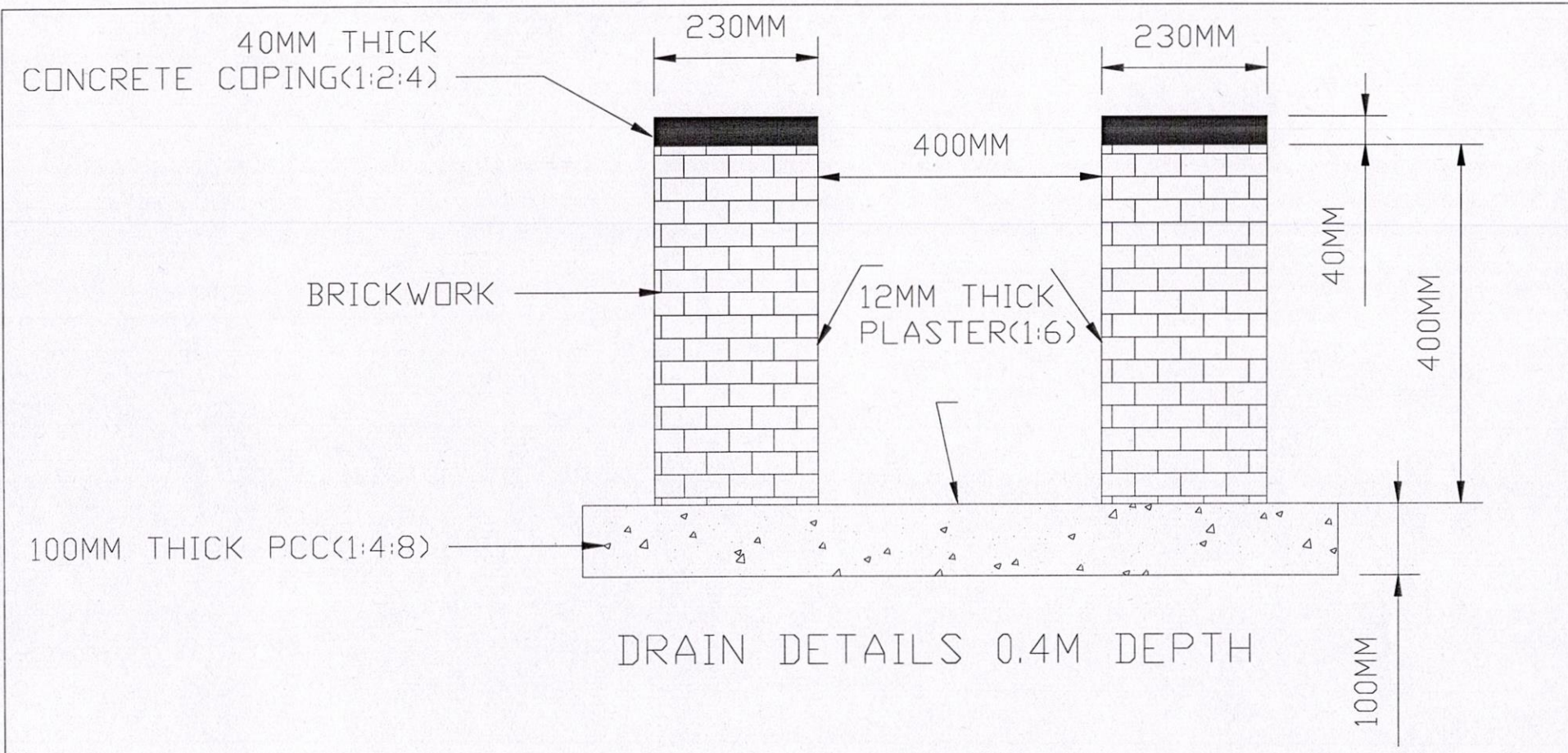
ALL DIMENSIONS ARE IN MM

NOTE:
 1)CAMBER SHALL BE MAINTAINED FROM THE SUBGRADE LEVEL
 2)IN CASE SOFT/HARD ROCK MAT WITH SUBGRADE IS FOUND THEN 100MM THICK MURUM SHALL BE LAID IN PLACE OF 200 MM THICK MURUM FILLING.

PROJECT: TYPICAL SECTION
TITLE: SECTION OF 8 M WIDTH WBM ROAD
DRG. NO. : BHE/PW/OY- 02 C

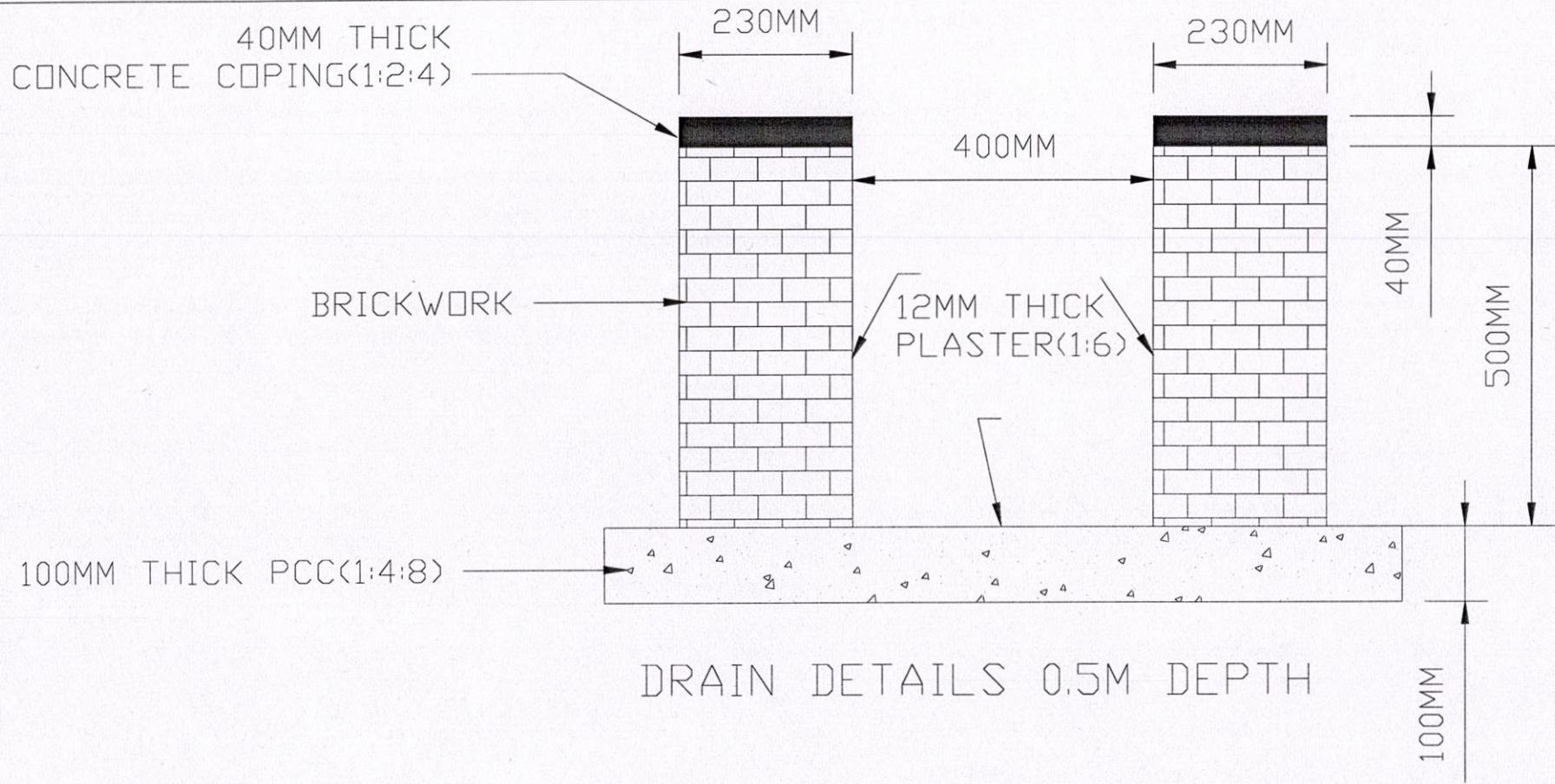


PROJECT: TYPICAL SECTION
TITLE: SECTION OF STORAGE YARD BLOCK
DRG. NO. : BHE/PW/OY- 02 D



DETAILS OF 0.4M DEPTH DRAIN

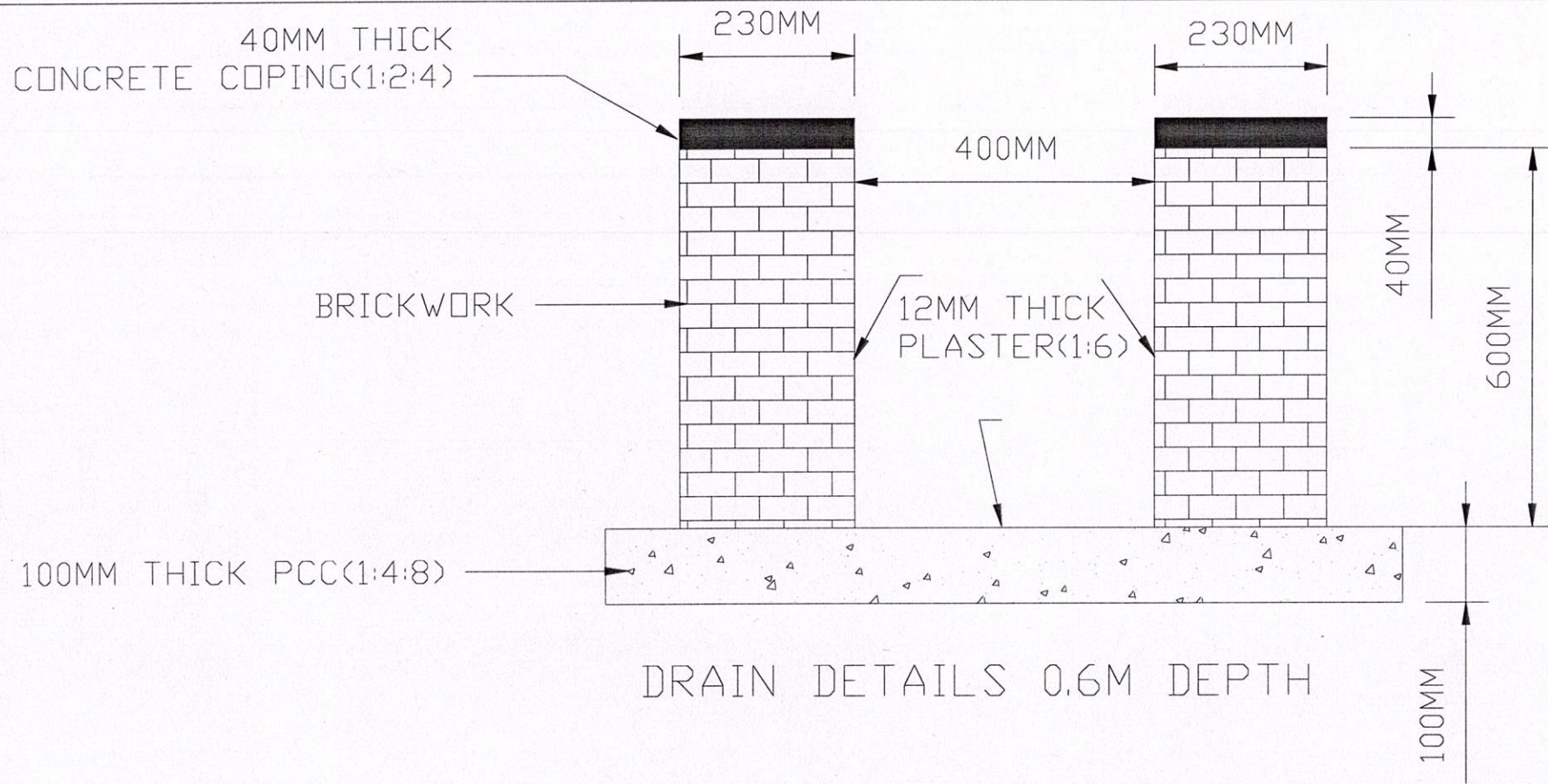
PROJECT: TYPICAL DRAWING
TITLE: DETAILS OF 0.4M DEPTH DRAIN
DRG. NO. BHE/PW/OY- 03



DRAIN DETAILS 0.5M DEPTH

DETAILS OF 0.5M DEPTH DRAIN

PROJECT: TYPICAL DRAWING
TITLE: DETAILS OF 0.5M DEPTH DRAIN
DRG. NO. BHE/PW/OY- 04

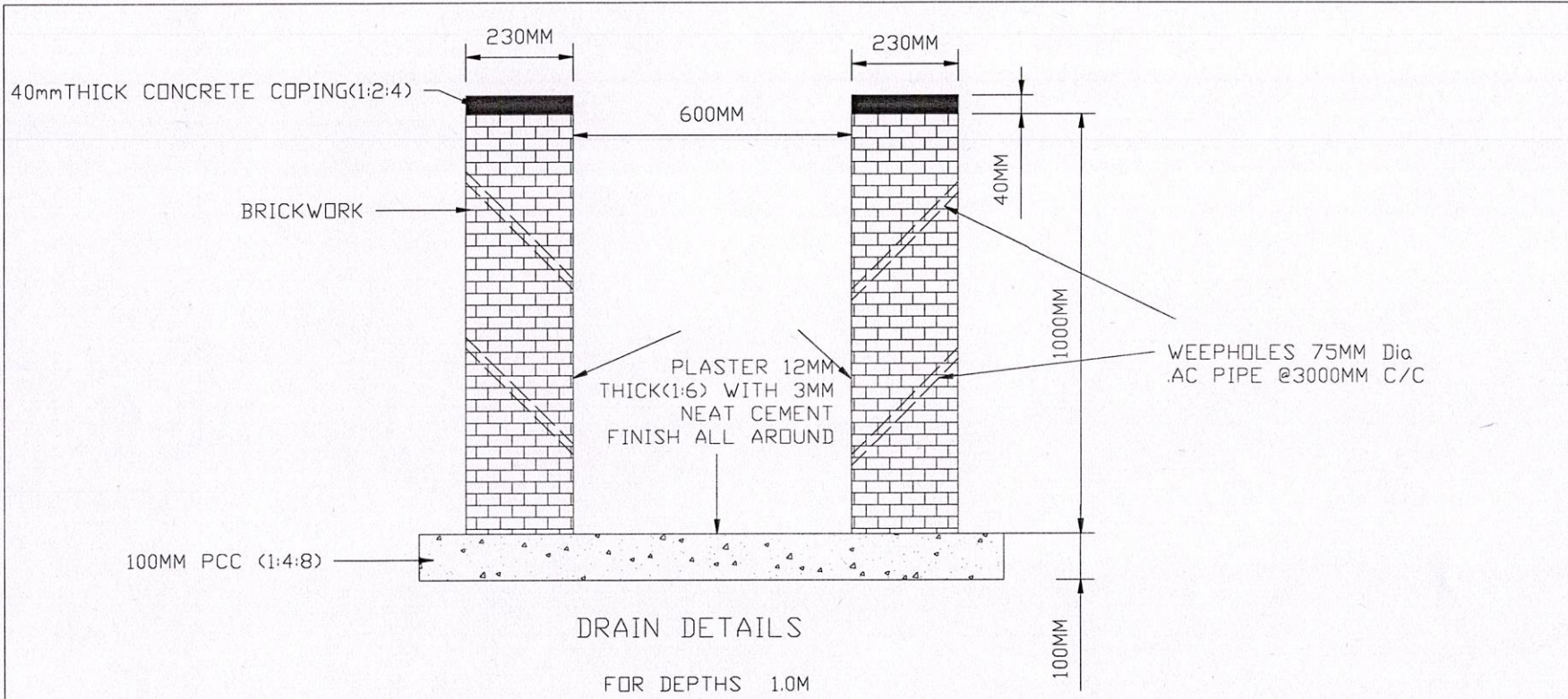


DETAILS OF 0.6M DEPTH DRAIN

PROJECT: TYPICAL DRAWING

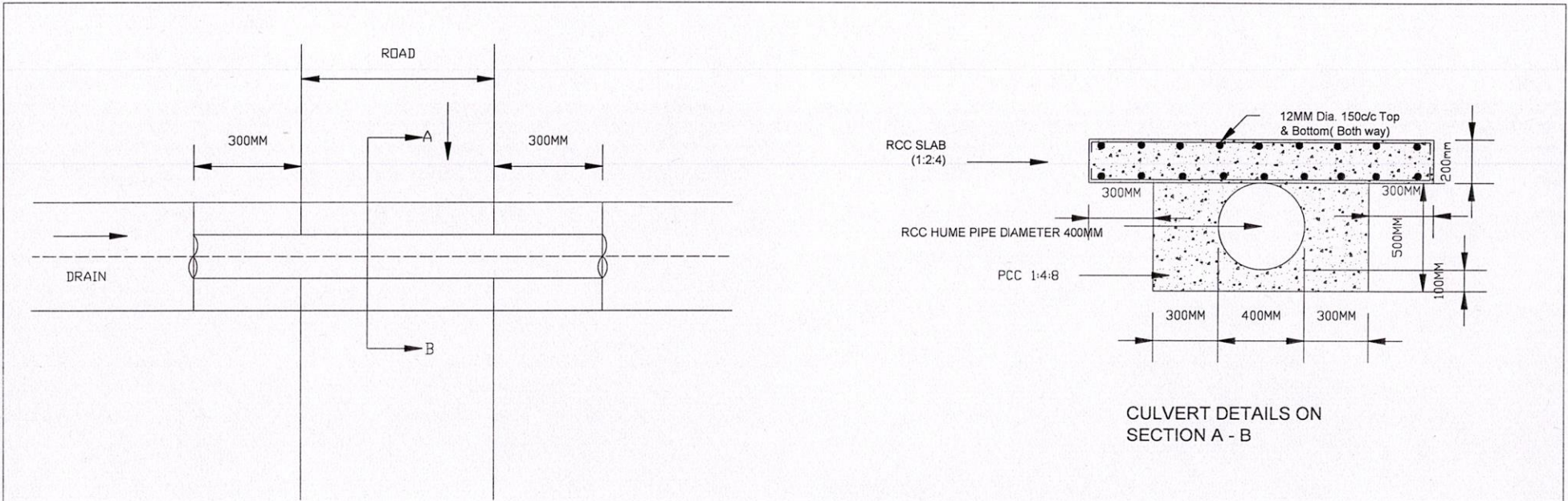
TITLE: DETAILS OF 0.6M DEPTH DRAIN

DRG. NO. BHE/PW/OY- 05



DETAILS OF 1.0M DEPTH WITH 600MM WIDE DRAIN

PROJECT: TYPICAL DRAWING
TITLE: 1.0 M DEPTH DRAIN
DRG. NO. : BHE/PW/OY-08




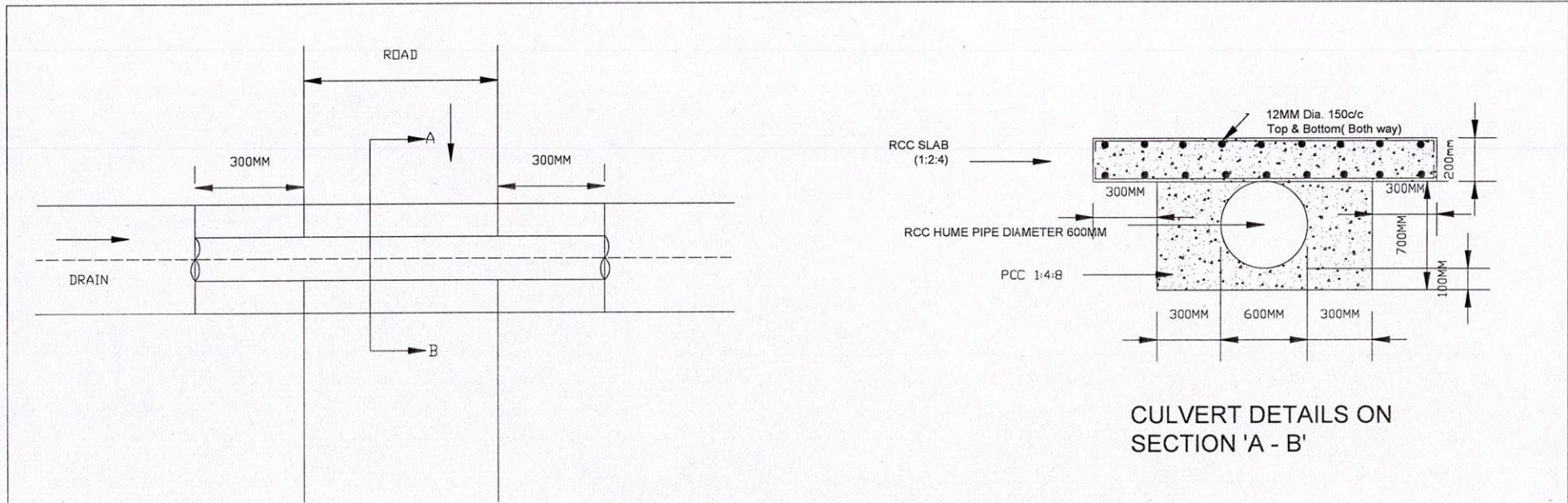
CULVERT DETAIL FOR 400MM DIA RCC HUME PIPE

PROJECT:- TYPICAL DRAWING


TITLE :- CULVERT DETAILS FOR 400 MM DIA, RCC HUME PIPE

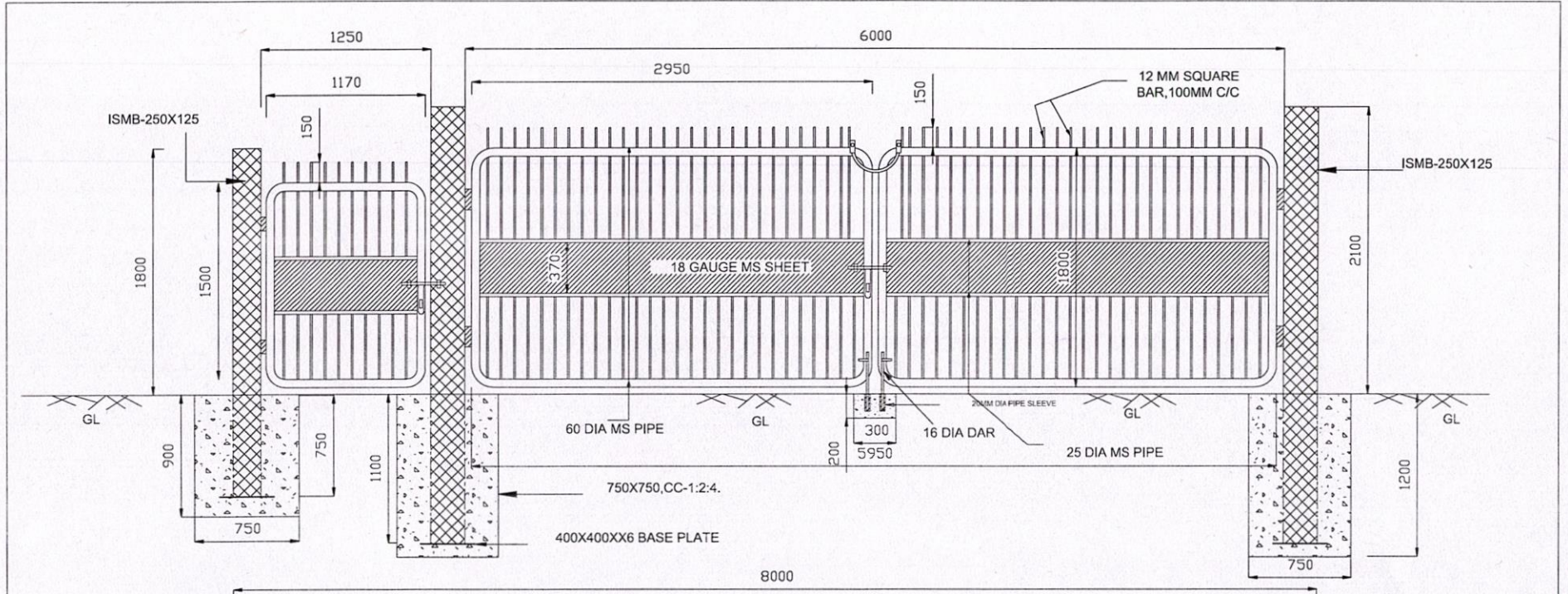
DRG NO. :- BHE/PW/OY-09

OWNER :-  **BHEL PSNR**



CULVERT DETAIL FOR 600MM DIA. RCC HUME PIPE

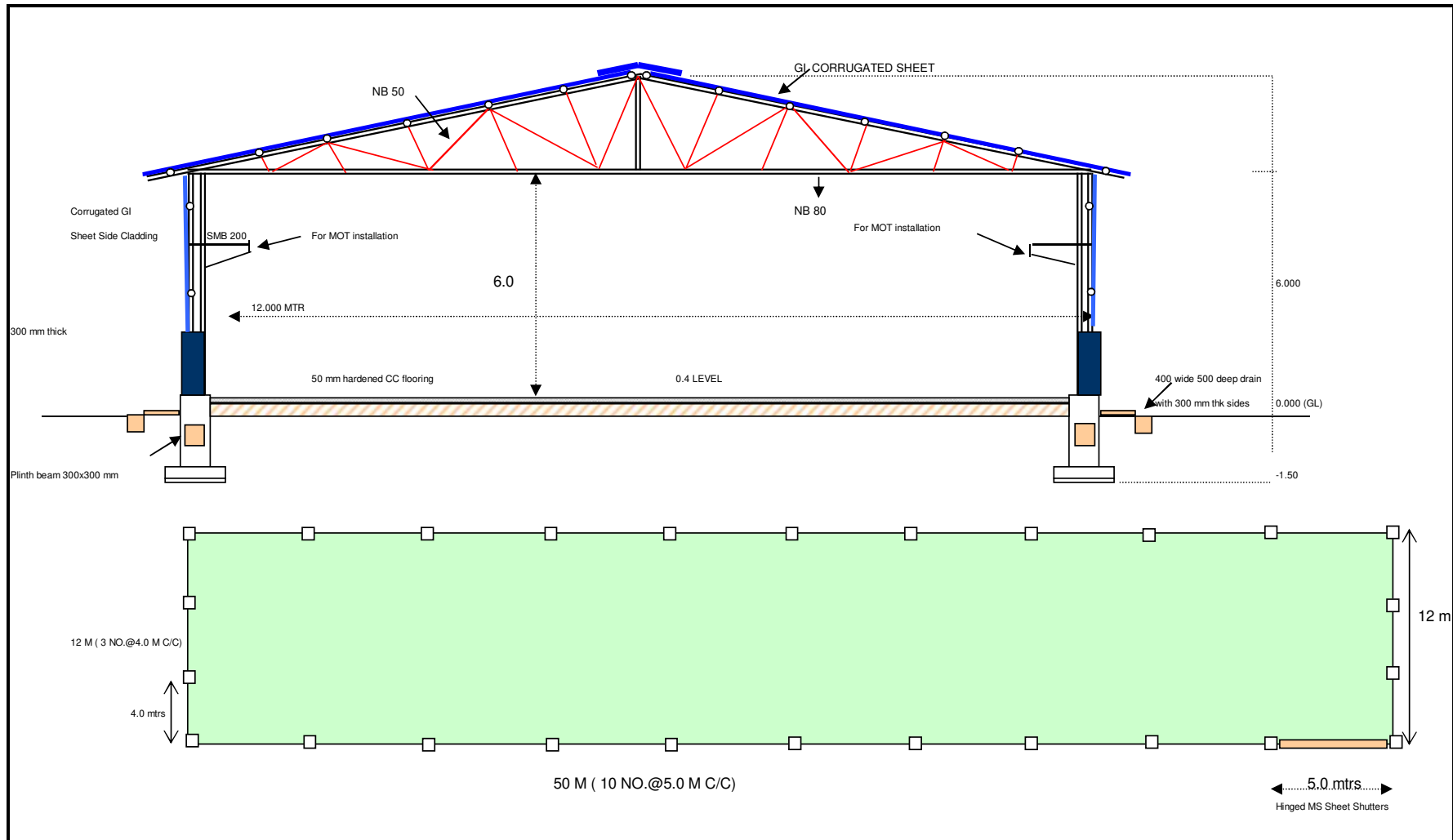
PROJECT:-	TYPICAL DRAWING
TITLE :-	CULVERT DETAILS FOR 600 MM DIA, RCC HUME PIPE
DRG NO. :-	BHE/PW/OY-10
OWNER :-	 BHEL PSNR



- NOTE:
 1) ALL DIMENSIONS ARE IN 'MM'.
 2) CONCRETE FOR POST FOUNDATION-CC-1:2:4.
 3) PANEL: 2950 X 1800.
 4) GAP BETWEEN EARTH TO PANEL - 100MM.
 5) TOTAL WEIGHT OF GATE - 750 KG (APPROX)

PROPOSED MS PIPE GATE

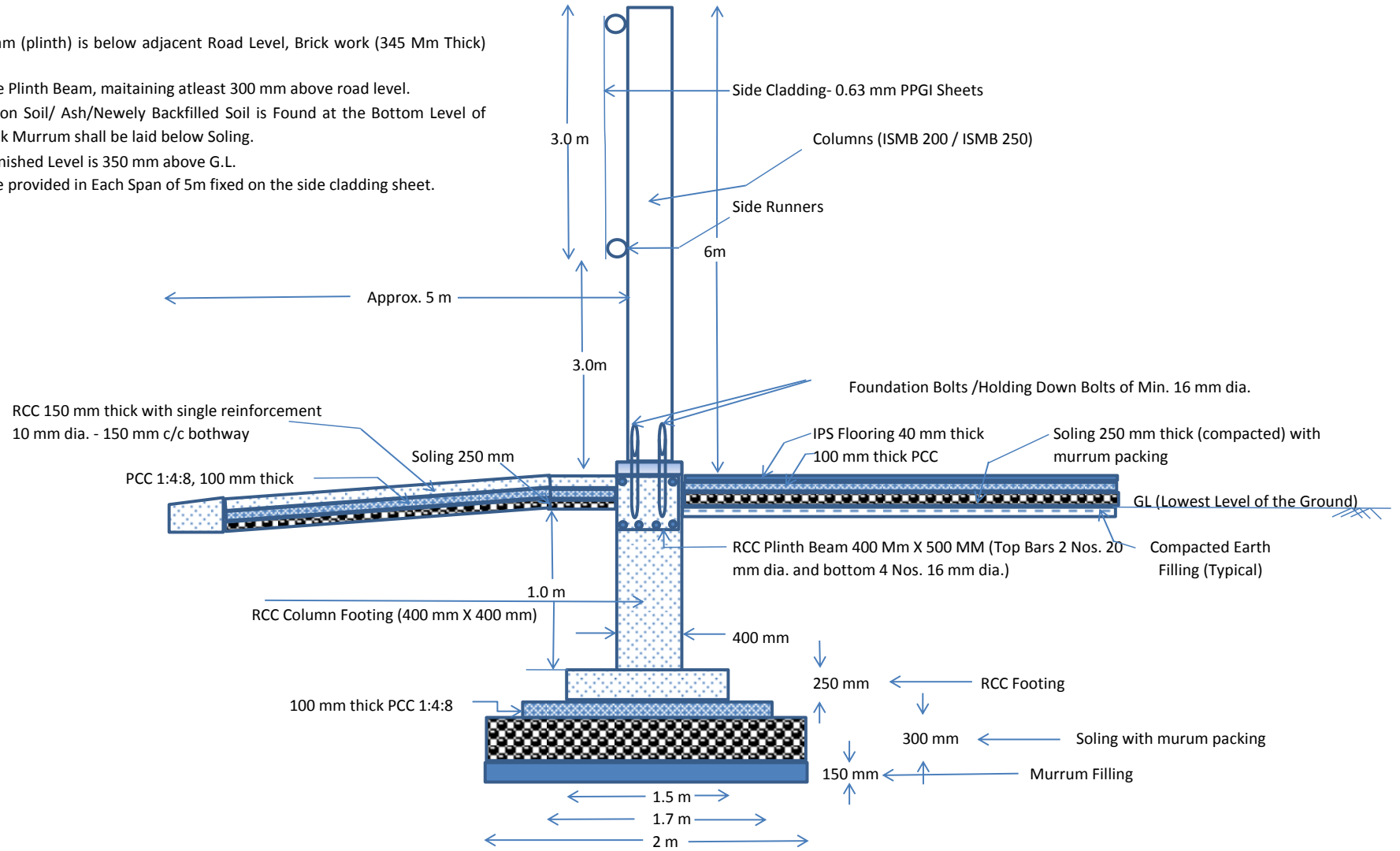
PROJECT :-	TYPICAL DRAWING
TITLE :-	MS PIPE GATE
DRG NO. :-	BHE/PW/GATE
OWNER :-	



PROJECT:		TITLE: GA DRG FOR STORE		REV	DATE
Closed Storage Shed of 4x225 MW Arun-3 HEP		Made by		OO	02.06.20
Rev	oo	Checked by			
		Approved by			

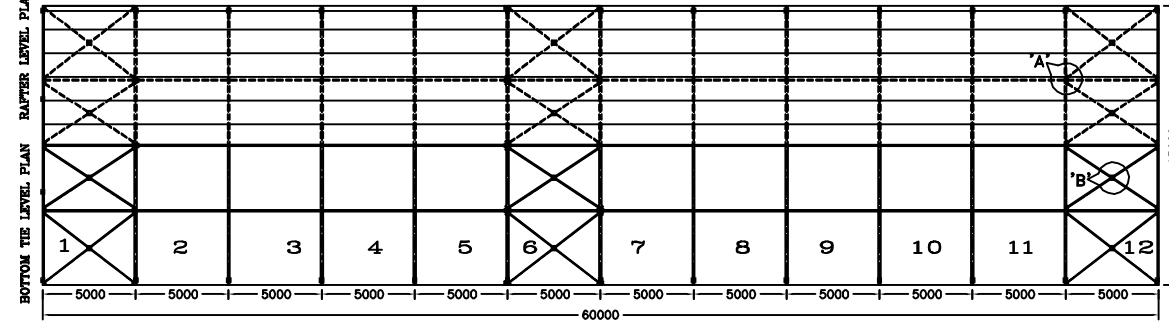
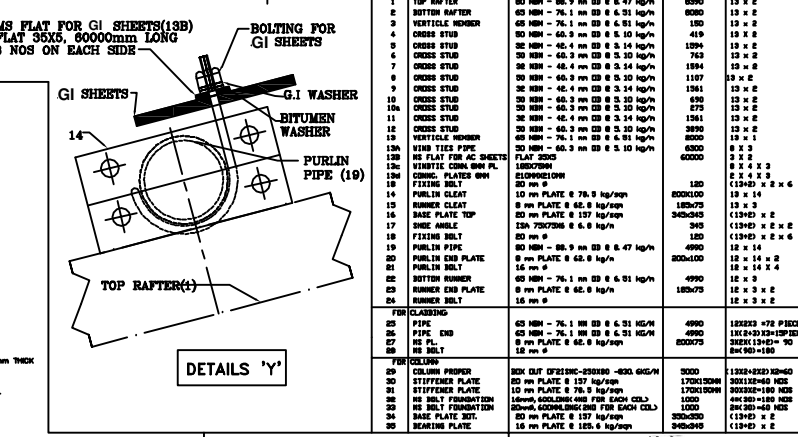
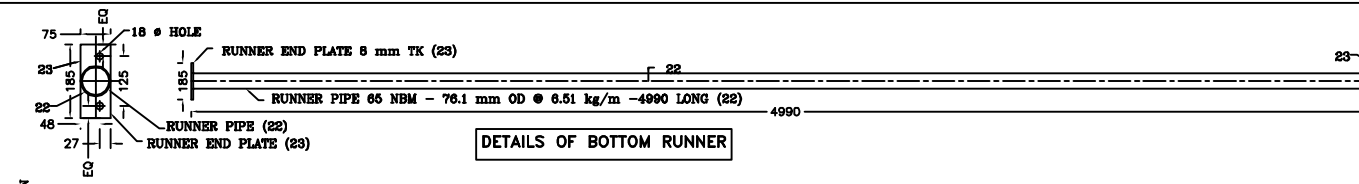
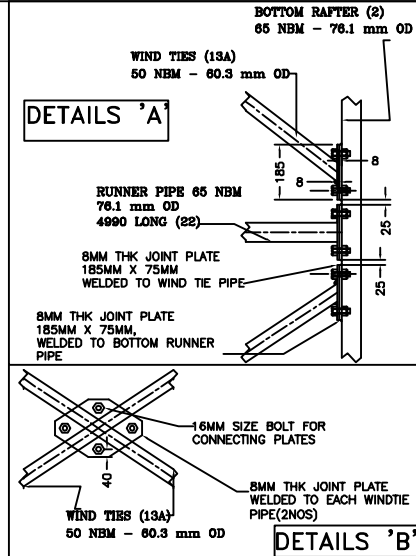
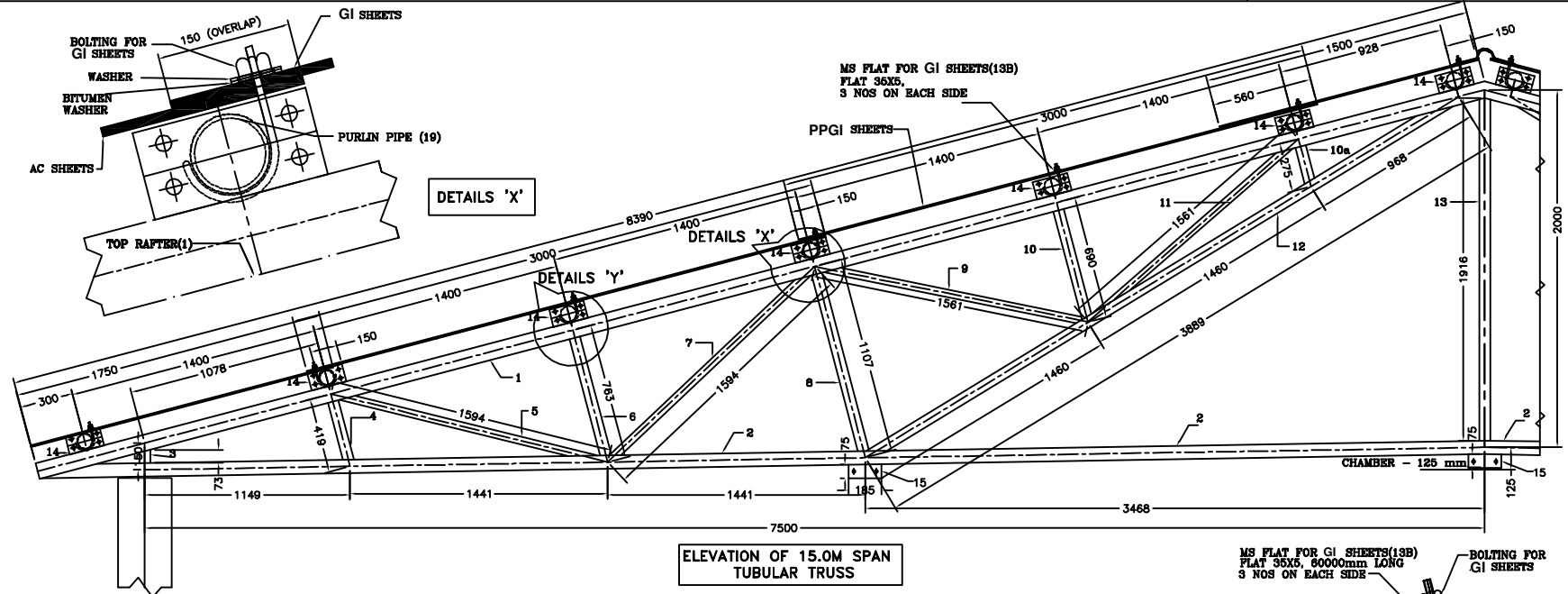
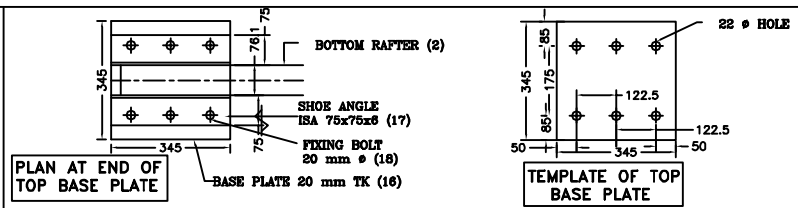
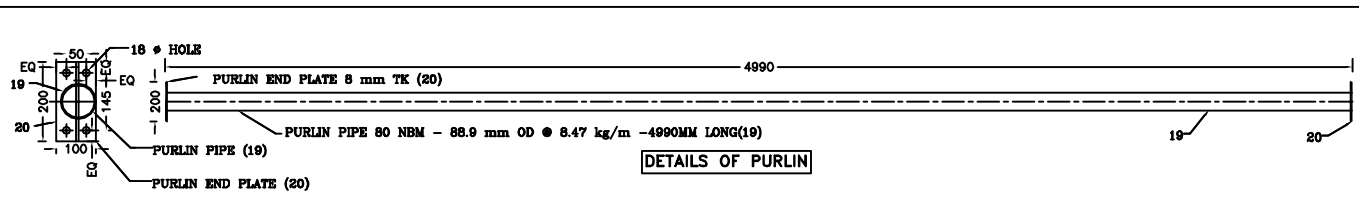
Note:

1. In case Top of Beam (plinth) is below adjacent Road Level, Brick work (345 Mm Thick) should be raise above Plinth Beam, maintaining atleast 300 mm above road level.
- 2) In case Black Cotton Soil/ Ash/Newely Backfilled Soil is Found at the Bottom Level of Soling, a 150 mm thick Murrum shall be laid below Soling.
- 3) In General Floor Finished Level is 350 mm above G.L.
- 4) Ventilators shall be provided in Each Span of 5m fixed on the side cladding sheet.



DRG. NO.: BHE/PW/CS-02

SECTIONAL DETAILS OF RCC FOOTING & ISMB COLUMNS FOR CLOSED STORAGE SHED



NOTE :

- * RIB PLATES AND ALL GUSSET PLATES ARE 6 mm THICK
- * FRING BOLTS - 20 mm DIA.
- * PURLIN CLEAT CONNECTING BOLTS 16 mm DIA.

GENERAL NOTE :

- * ALL DIMENSIONS ARE IN MM
- * DO NOT SCALE THE DRAWING.
- * ALL MATERIAL SHALL CONFORM TO IS 1161-1978, IS 226-1975, IS 4023
- * ALL WELDING WORK SHALL CONFORM TO IS 816-1980
- * ELECTRODES SHALL CONFORM TO IS 814-1974
- * M.S. BLOCK BOLTS AND NUTS SHALL CONFORM TO IS 1363-1984
- * WASHERS SHALL CONFORM TO IS 6366-1976, IS 6370-1968, IS 6372-1976 OR IS 6374-1976
- * ONE COAT OF RED OXIDE SHALL BE APPLIED PRIOR TO APPLYING THE PAINT APPROVED SPECIFICATION.
- * ALL WELDS ARE 6 mm FILLET WELD UNLESS OTHERWISE MENTIONED.
- * CHECK THE EXACT DIMENSIONS AT SITE BEFORE FABRICATION
- * ANY DISCREPANCY IN THE DRAWING SHOULD BE BROUGHT TO NOTICE BEFORE EXECUTION.

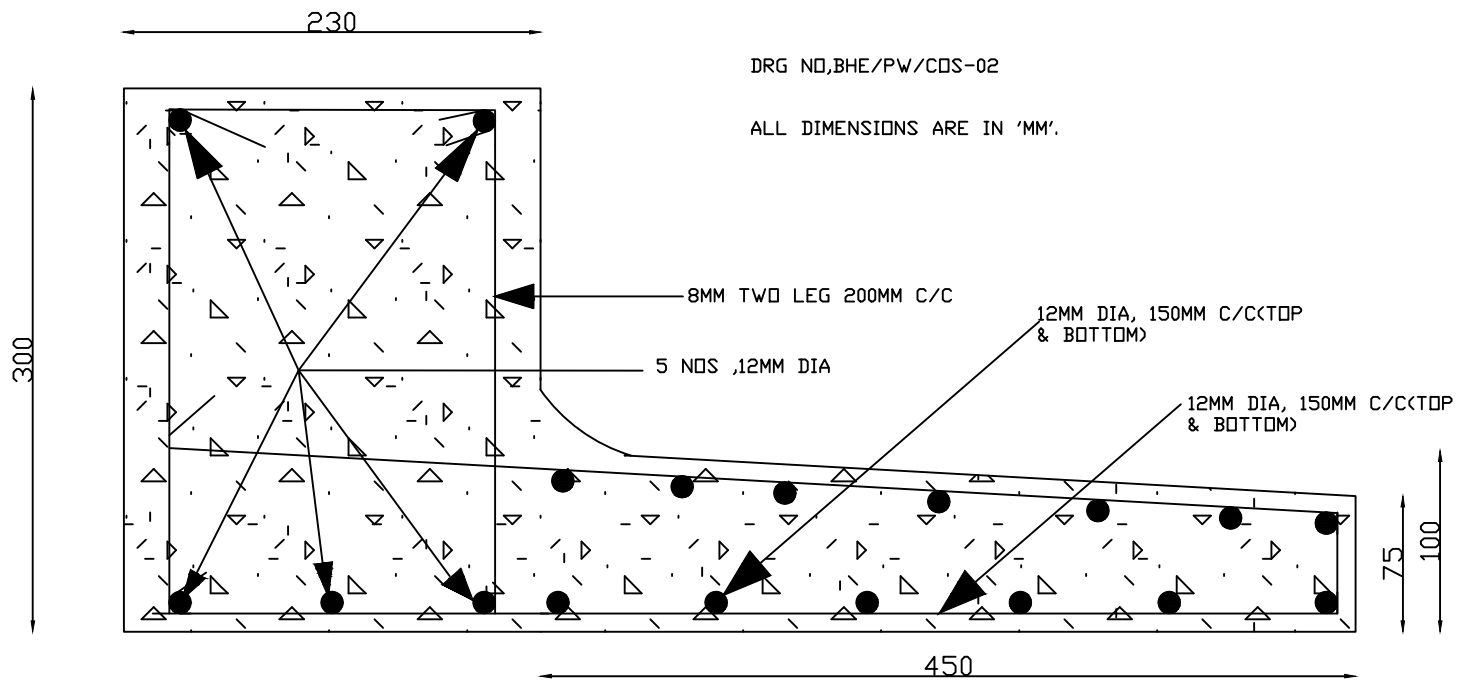
Sl. No.	DESCRIPTION	SPECIFICATIONS	LENGTH/SIZE	QUANTITY
1	TOP RAFTER	65 NBM - 88.9 mm OD @ 8.47 kg/m	6500	12 x 2
2	BOTTOM RAFTER	65 NBM - 76.1 mm OD @ 6.51 kg/m	6000	12 x 2
3	VERTICLE MEMBER	65 NBM - 76.1 mm OD @ 6.51 kg/m	180	12 x 2
4	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	419	12 x 2
5	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	1294	12 x 2
6	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	763	12 x 2
7	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	1594	12 x 2
8	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	1197	12 x 2
9	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	1341	12 x 2
10	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	696	12 x 2
11	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	1341	12 x 2
12	CROSS STUD	32 NBM - 42.4 mm OD @ 3.14 kg/m	3990	22 x 2
13	VERTICLE MEMBER	65 NBM - 76.1 mm OD @ 6.51 kg/m	8000	12 x 1
13A	WIND TIES PIPE	50 NBM - 60.3 mm OD @ 5.10 kg/m	6000	8 x 2
13B	FLAT JOINT FOR AC SHEETS	18500MM	60000	2 x 2
13C	VINTIC CONN. BMM PL. DISPOSITION	80 mm x 75 mm	8 x 2 x 3	8 x 2 x 3
13D	FIXING BOLT	20 mm x 75 mm	120	12 x 2
14	PURLIN CLEAT	10 mm PLATE @ 76.1 kg/m	180	12 x 2
15	RUNNER CLEAT	8 mm PLATE @ 65.1 kg/m	1800	12 x 3
16	BASE PLATE TOP	80 mm PLATE @ 157 kg/m	345x345	12 x 2
17	SHOE ANGLE	ISA 75x75x8 @ 6.51 kg/m	240	12 x 2
18	FIXING BOLT	20 mm x 75 mm	120	12 x 2
19	PURLIN PIPE	80 NBM - 88.9 mm OD @ 8.47 kg/m	4990	12 x 14
20	PURLIN END PLATE	8 mm PLATE @ 65.1 kg/m	200x100	12 x 14 x 2
21	PURLIN BELT	15 mm x 15 mm	18 x 14 x 4	12 x 14 x 2
22	BOTTOM RAFTER	65 NBM - 76.1 mm OD @ 6.51 kg/m	4990	12 x 3
23	RUNNER END PLATE	8 mm PLATE @ 65.1 kg/m	180x75	12 x 3 x 2
24	RUNNER BELT	15 mm x 15 mm	18 x 14 x 4	12 x 3 x 2
FOR CLASING				
25	PIPE	65 NBM - 76.1 mm OD @ 6.51 kg/m	4990	12x2x2 +72 P/BOLTS
26	PIPE	65 NBM - 76.1 mm OD @ 6.51 kg/m	4990	12x2x2+120 P/BOLTS
27	HS PL.	8 mm PLATE @ 65.1 kg/m	8000x75	32x13x2+ 90
28	HS PL.	18 mm x 18 mm	8000x75	24x90+180
FOR CEILING				
29	COLUMN PROPER	80 mm PLATE @ 157 kg/m	5000	112x2x22+10x60
30	STIFFENER PLATE	10 mm PLATE @ 76.1 kg/m	1700x200	200x22x40x100
31	STIFFENER PLATE	10 mm PLATE @ 76.1 kg/m	3000x200	300x22x40x100
32	HS BELT FOUNDATION	15 mm x 15 mm	1000	24x30+40x100
33	HS BELT FOUNDATION	15 mm x 15 mm	1000	24x30+40x100
34	BASE PLATE INT.	80 mm PLATE @ 157 kg/m	300x250	12x14 x 2
35	SEAMING PLATE	15 mm PLATE @ 157 kg/m	240x250	12x14 x 2

PROJECT :
1X500 MW FGUTPP (Stage-IV)
UNCHAHR

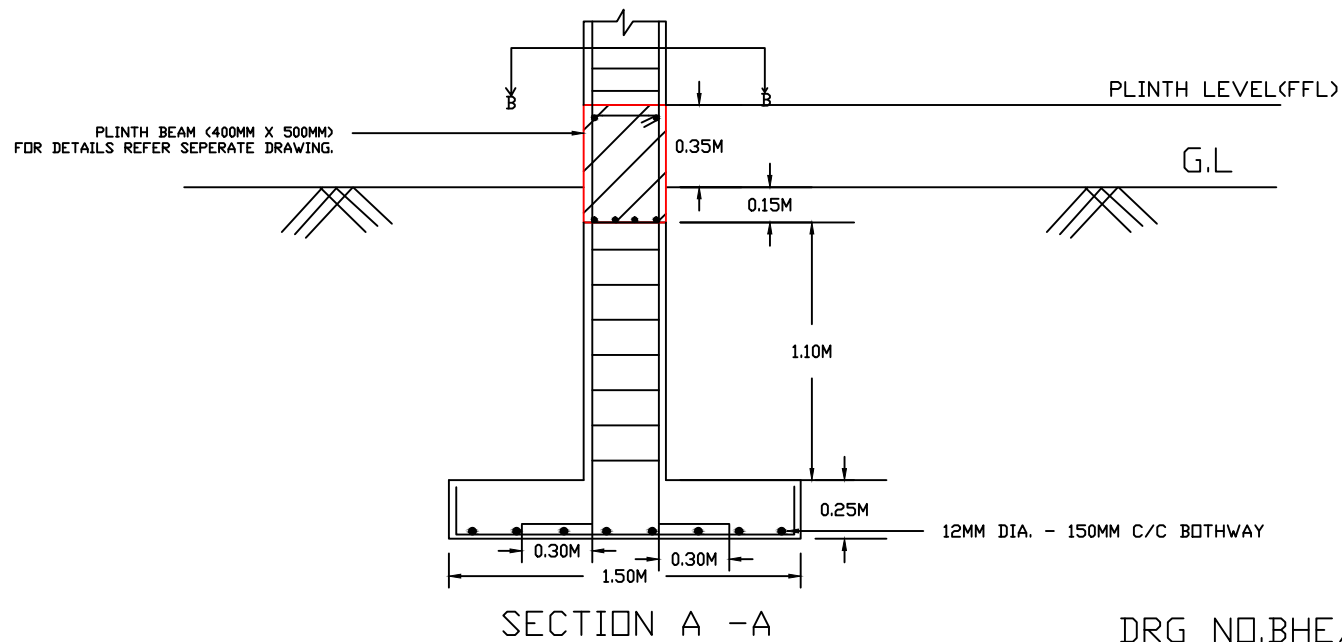
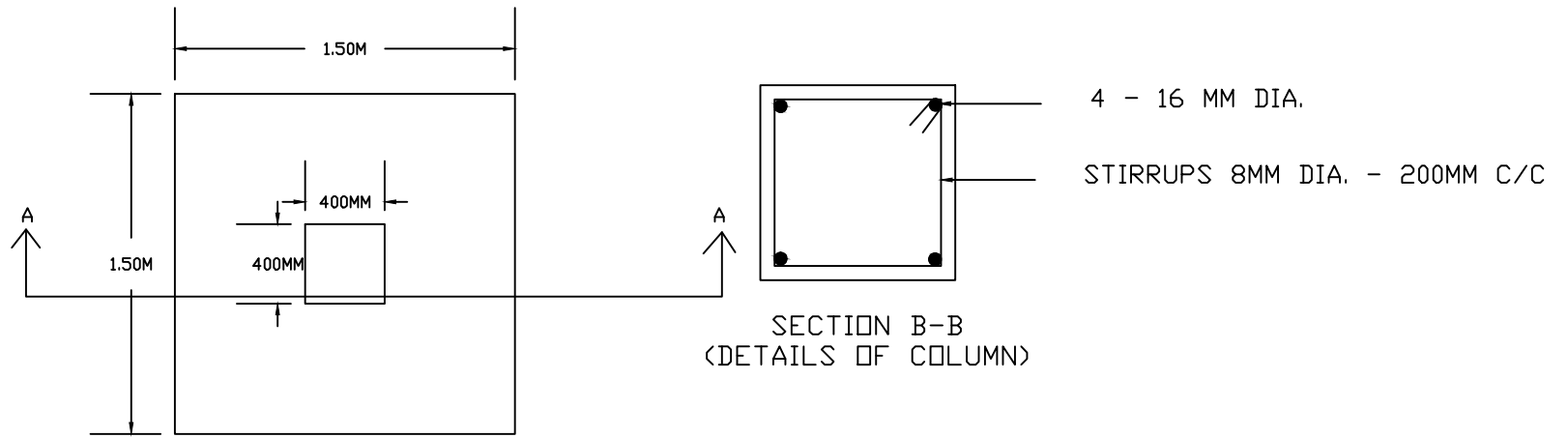
BHARAT HEAVY ELECTRICALS LIMITED

TITLE :
DETAILS OF 15.00 m SPAN TUBULAR TRUSS
FOR CLOSED/SEMI CLOSED SHED

DRG NO- BHE/PW/CS/SS-08

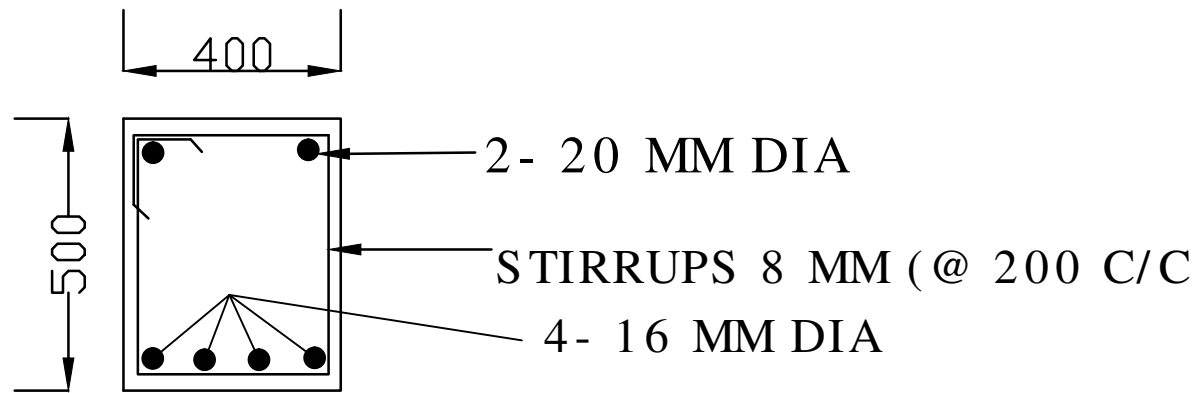


SECTION OF LINTEL & SUN SHED PROJECTION FOR CLOSED SHED



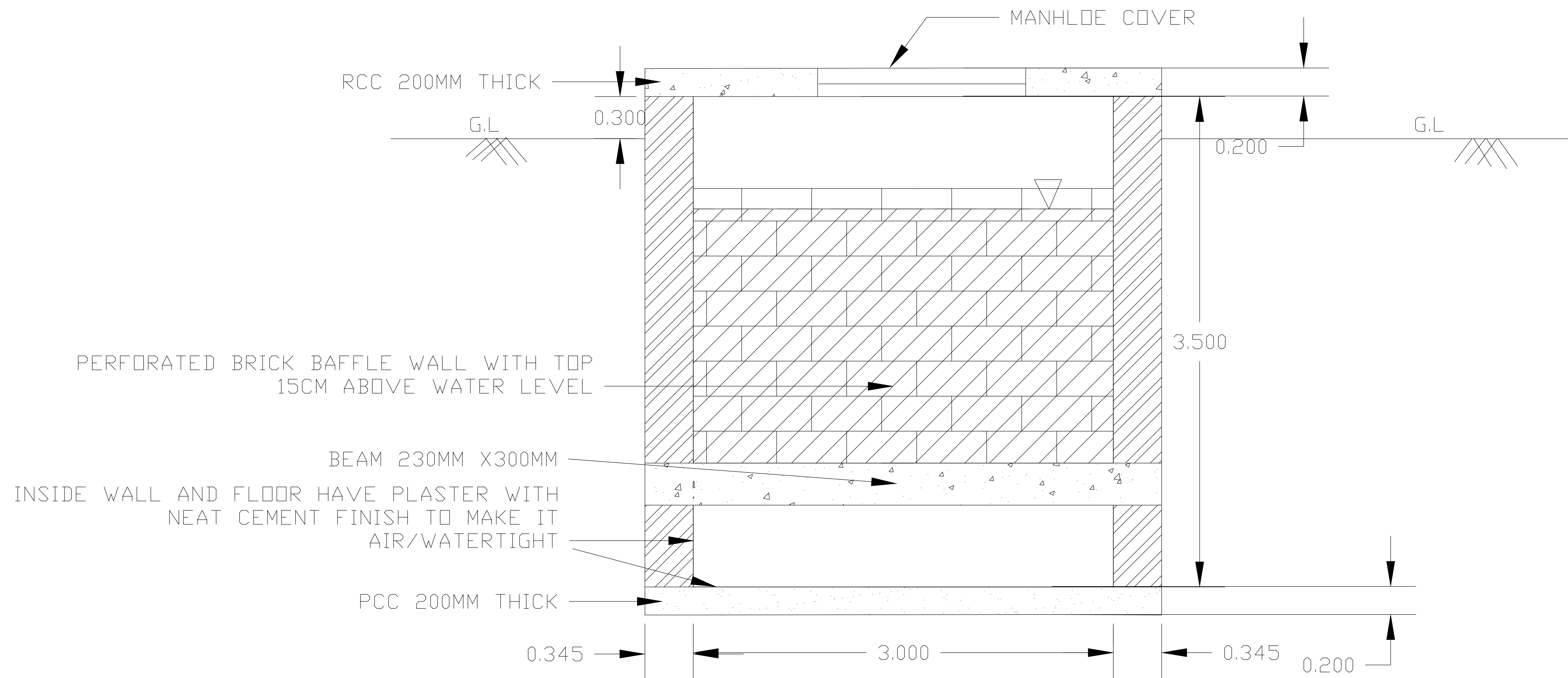
DRG NO. BHE/PW/CS-03

PLAN & RCC DETALIS OF FOOTINGS FOR CLOSED SHED



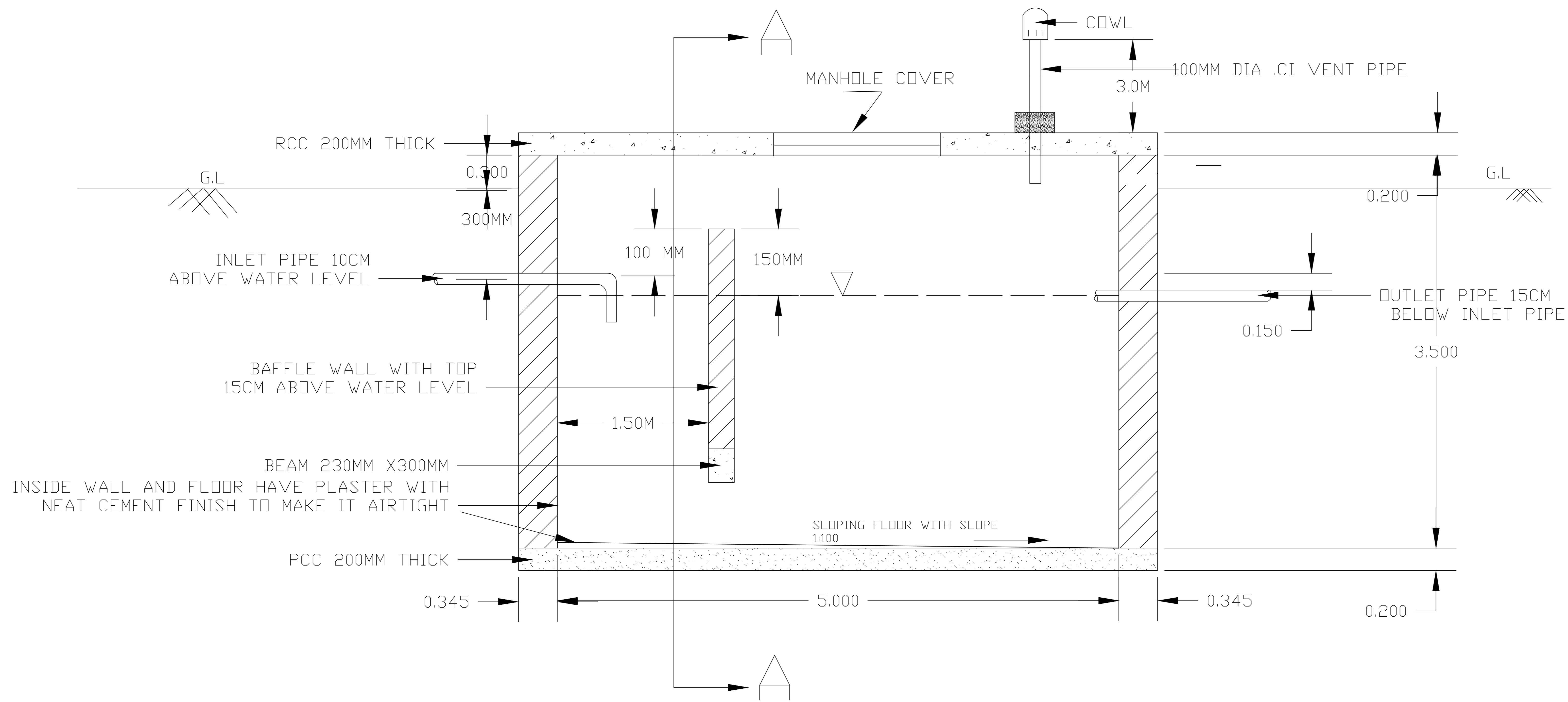
SECTION OF PLINTH BEAM
(400MMX500MM)

DRG. NO. BHE/PW/CS-04



SECTION A-A

DRG. NO. BHE/PW/ST-SP-01
SHEET 02 OF 02



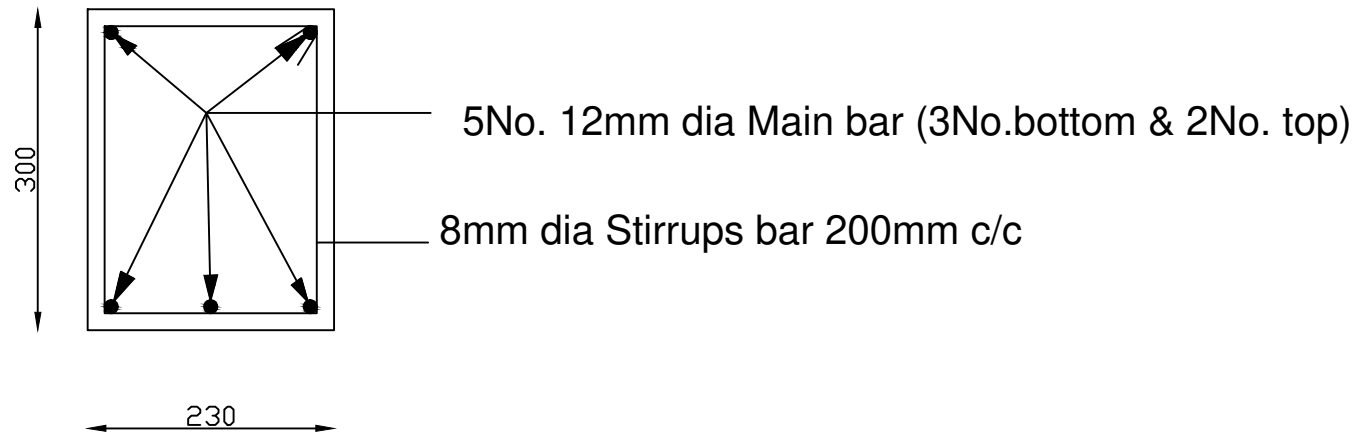
SEPTIC TANK(5.0M X 3.0M X3.5M)

DRG NO. BHE/PW/ST-SP-01

SHEET 01 OF 02

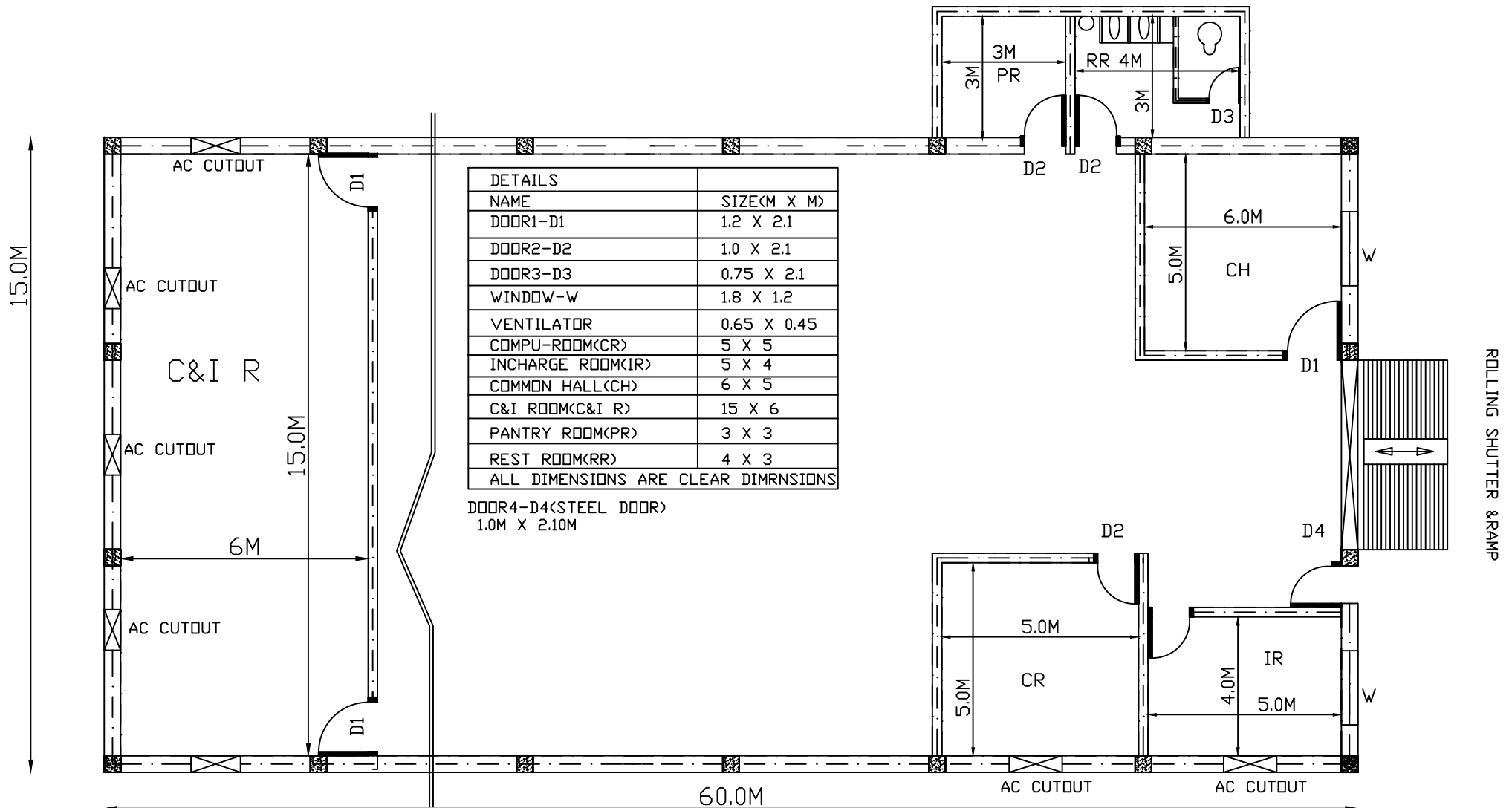
NOTE : F.B 30-50CM ABOVE LIQUID LEVEL

DETAILS OF SEPTIC TANK & SECTION

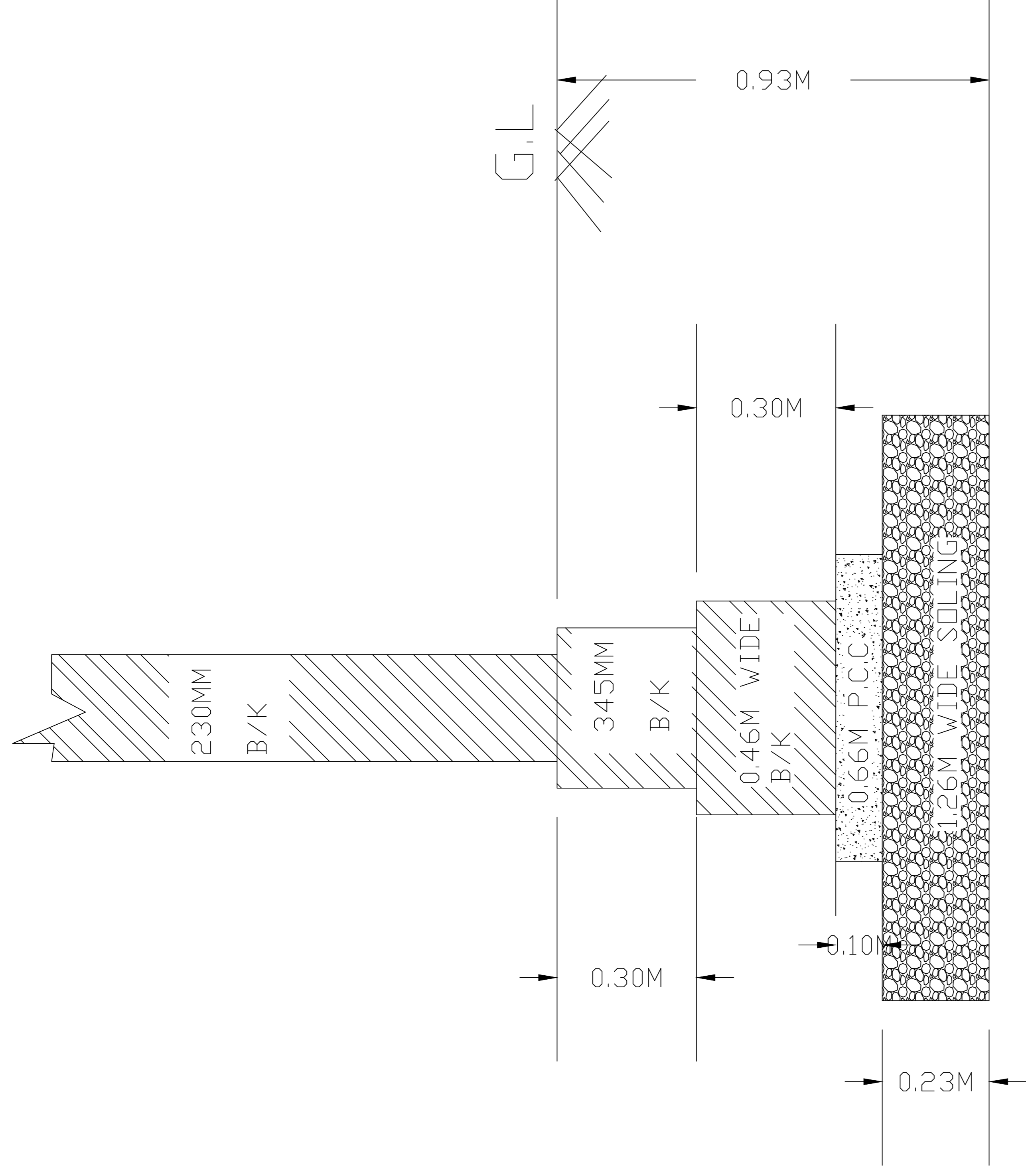


SECTION OF BEAM (230mm x 300mm)

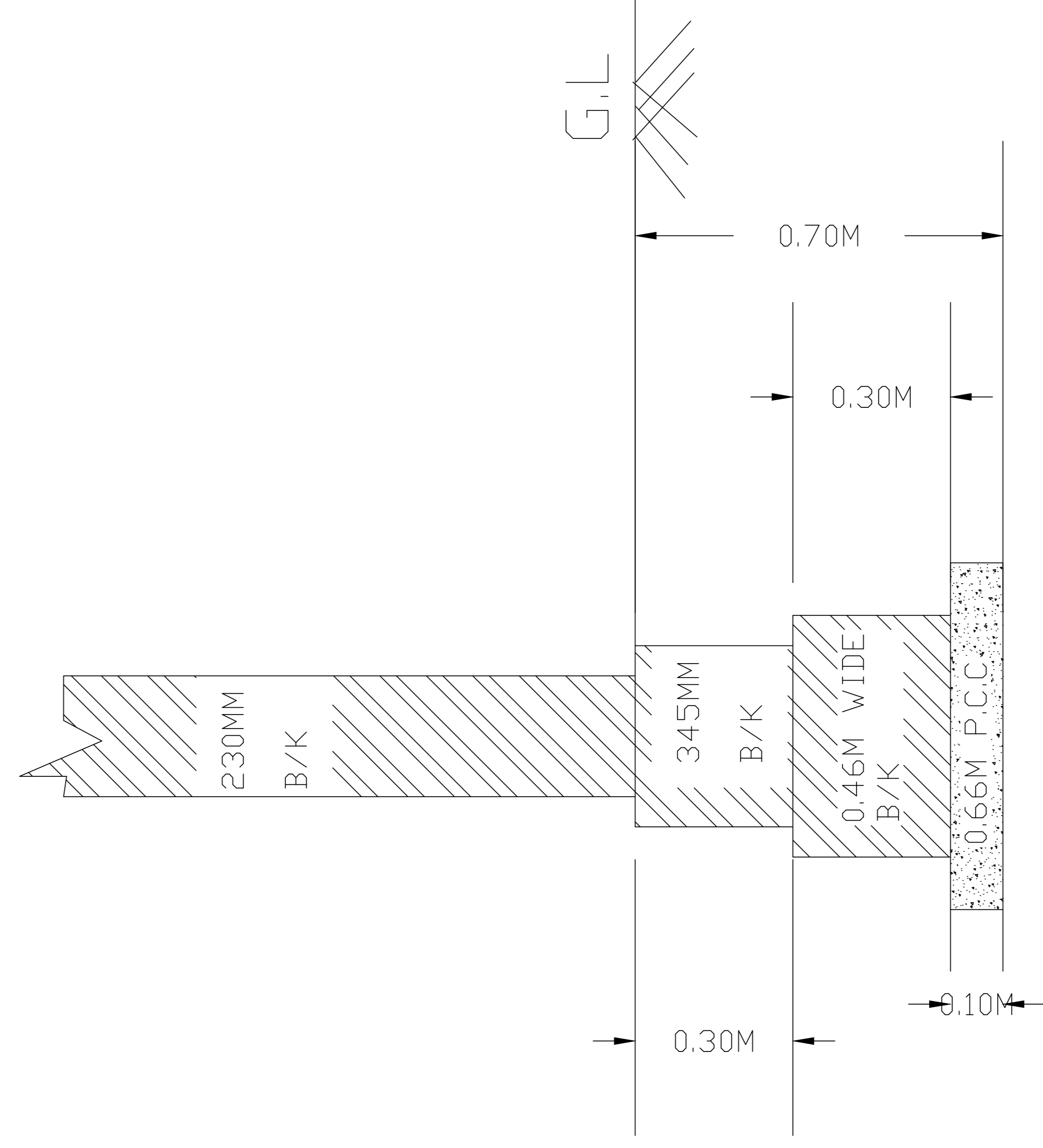
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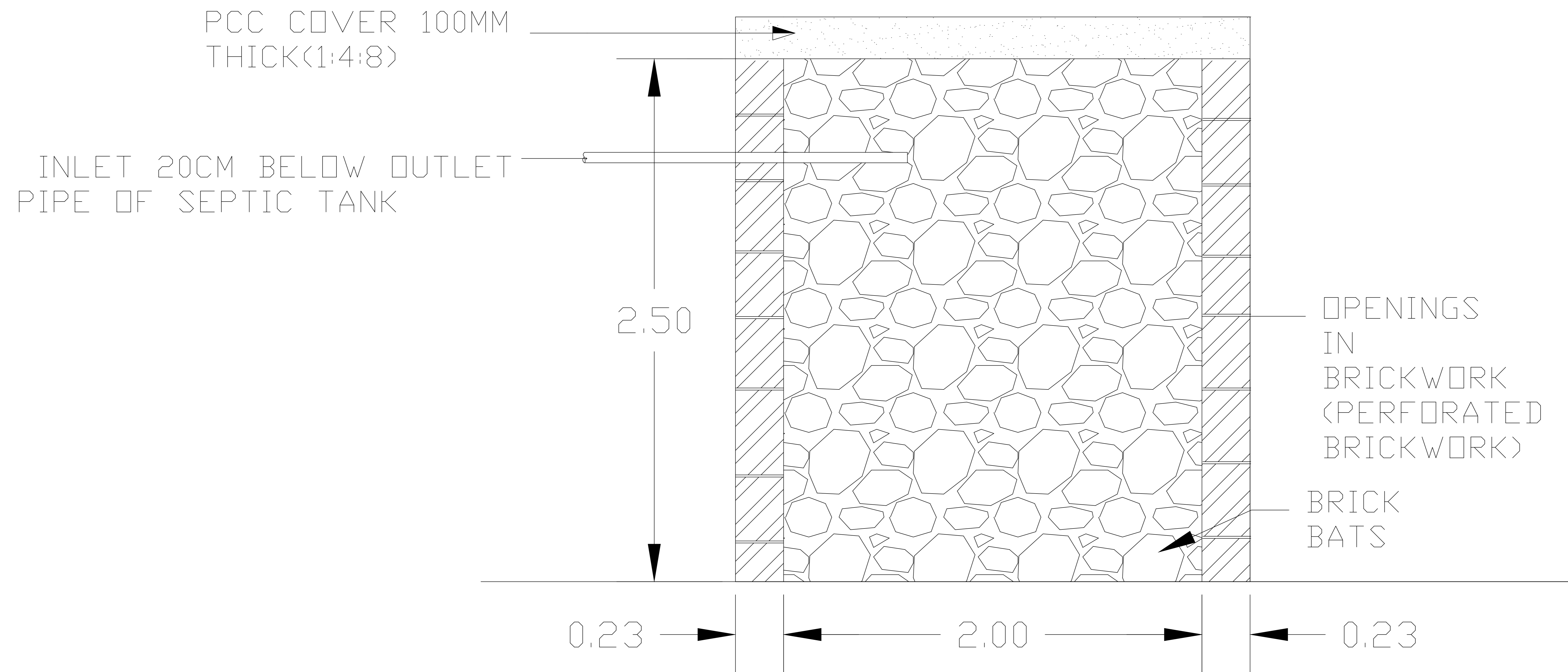
PLAN FOR CLOSED SHED WITH OFFICE (60M X 15M)



Internal wall Foundation details

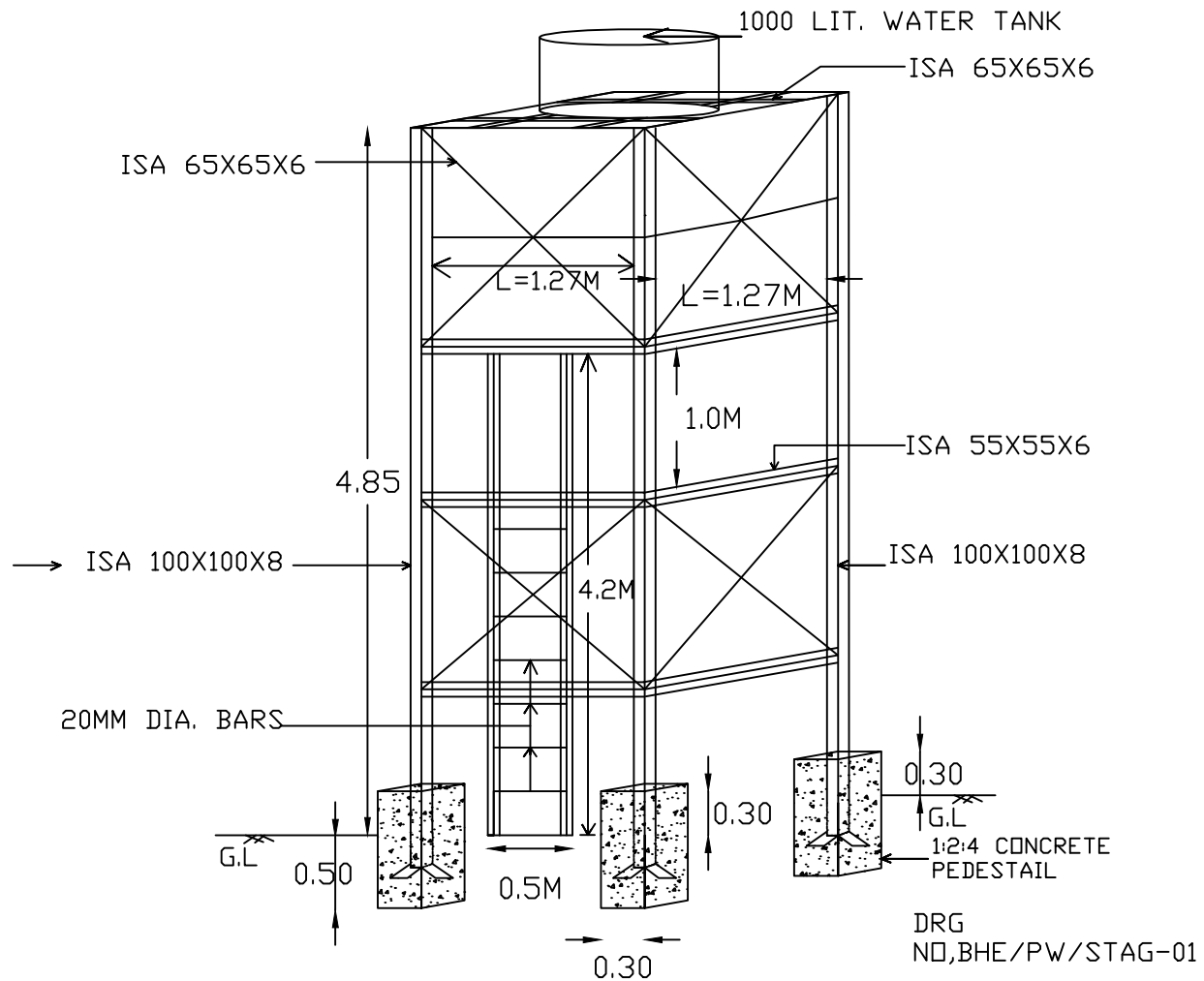


Partition wall Foundation details



DETAILS OF SOAK PIT

DRG. NO. BHE/PW/ST-SP-03



STAGING OF OVER HEAD WATER TANK

NOTE:
*CONCRETE 1:2:4 SHALL BE PAID UNDER RELAVENT ITEM IN BOQ