



INVITATION TO TENDER

Ref: OPS/OS/WC/2016-17/39/008

Date : 07.05.2016

Sub: Auxiliary works of modernization Civil Works related to equipment foundations, rail track, gas manifold etc.

Sealed tenders are invited under **two bid system**, Techno-Commercial Bid (Part-I) and Price Bid (Part-II) from the reputed and experienced contractors with sound technical and financial capability for the subject work.

SL. NO.	NAME OF THE WORK	ESTIMATE VALUE ₹	EMD ₹	COST OF TENDER ₹	COMPLETION PERIOD	LAST DATE FOR RECEIPT OF TENDER
01	Auxiliary works of modernization Civil Works related to equipment foundations, rail track, gas manifold etc.	29.00 Lakhs	60,000/-	229/-	4 Months	30.05.2016 up to 13.00 Hrs.

1.0 ELIGIBILITY CRITERIA

- I) Average annual turnover of the contractor during the last 3 years ending 31st March 2015 should be at least 30% of the estimated value. (i.e. ₹ 8.70 Lakhs)

Tenderer should enclose EPF, ESI, PAN, TIN, Service Tax New registration no., Income tax returns for last three years (FY 2012-13, 2013-14 & 2014-15) and Profit & Loss account and Balance Sheet certified by the Practicing Chartered Accountant for the last 3 years.

- II) The Contractor should have experience of completing similar works during last 7 years ending 30th April 2016 as given below:

- (a) Three similar completed works costing not less than the amount equal to 40% of the estimated value (i.e. ₹ 11.60 Lakhs each)

OR

- (b) Two similar completed works costing not less than the amount equal to 50% of the estimated value. (i.e. ₹ 14.50 Lakhs each)

OR

- (c) One similar completed work costing not less than the amount equal to 80% of the estimated value. (i.e. ₹ 23.20 Lakhs)

Work orders & Job Completion Certificates from the customer shall be enclosed in support of successful and satisfactory completion of the orders.

Note: Similar work means execution of Civil & Structural works in an operating Industry.

- III) The works executed in the own name of the tenderer will only be considered for eligibility criteria.

- IV) Latest solvency certificate (within One year) from the Banker shall be produced.

2.0 SCOPE OF THE WORK

Work is to be carried out as per Scope of work (Annexure – I), Special conditions of contract (Annexure – II) and as per schedule of Quantities.

3.0 LOCATION OF WORK

The subject work is to be carried out **in Factory Premises** of BHEL, Heavy Plates & Vessels Plant (HPVP), Visakhapatnam, Andhra Pradesh.

4.0 COST OF TENDER DOCUMENTS / EARNEST MONEY DEPOSIT

The tender shall be accompanied with a Demand Draft of ₹ 229/- (Rupees Two Hundred Twenty Nine only) towards the cost of tender documents (Non-Refundable) and another DD for ₹ 60,000/- (Rupees Sixty Thousand only) towards EMD both drawn in favour of **BHARAT HEAVY ELECTRICALS LIMITED**, payable at Visakhapatnam.

EMD of unsuccessful tenderers shall be returned to after acceptance of LOI / Work Order by the successful bidder.

Note: Micro & Small Enterprises (MSEs) are eligible for exemption of Tender cost & EMD as per clause no. 32 annexure – II.

5.0 WORK COMPLETION PERIOD:

Work shall be completed **within 4 months** from the date of handing over of site by Civil Maintenance department.

6.0 SECURITY DEPOSIT :

Security Deposit shall be collected from the successful tenderer as per clause 23 of annexure - II

7.0 INCOME TAX :

Income tax as per statutory requirement will be deducted on each payment made to the contractor and TDS certificate will be issued to this effect.

8.0 PAYMENT TERMS

R.A Bill payments will be arranged within 30 days from the date of bill **or** 15 days from the date of clearance of the statutory compliance by IR Department whichever is later.

9.0 PRICE SCHEDULE :

- 9.1 Prices shall be quoted in the price schedule attached to the tender for the complete scope of work. The quoted prices shall be inclusive of all applicable taxes & duties as applicable as on date of tender submission except service tax. However, Service Tax as applicable shall be reimbursed on submission of proof of payment. Any new taxes imposed by Govt. shall be reimbursed on documentary evidence of payment.
- 9.2 The quoted prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- 9.3 Tenderer should quote the rates & amounts in figures. In case of any mismatch between the quoted rates and amounts, the quoted rates shall be considered as final. It may be noted that corrections, overwriting etc. are not allowed.
- 9.4 All rates shall be quoted in the tender format only.

10.0 REVERSE AUCTION :

“BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit ‘online sealed bid’ in the Reverse Auction. Non submission of ‘online sealed bid’ by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.”

General terms & conditions governing RA are mentioned in the special conditions at Annexure-VI

11.0 VALIDITY OF OFFER:

The offer shall be valid for a period of **3 months** from the last date for tender submission.

12.0 RISK PURCHASE:

In case the contractor fails to execute the work due to any reason, BHEL reserves the right to get the same completed through some other party at the risk & cost of the contractor and any additional expenditure incurred due to the same shall be charged to the contractor.

13.0 GENERAL :

13.1 Bidders shall confirm their acceptance to all the terms & conditions of the tender enquiry.

Deviations to the tender conditions are not acceptable and BHEL-HPVP reserves the right to reject such offers which do not meet Technical / Commercial requirements without any / further correspondence.

Bids not accompanied with requisite EMD, TENDER COST, late / delayed bids, incomplete / conditional offers, bids not conforming to the terms & conditions specified in the tender documents are liable for rejection.

13.2 BHEL reserves the right to modify or cancel or short close the tender at any stage at its discretion without assigning any reason thereof.

13.3 The bidders shall study the Tender documents, Drawings and all other relevant documents in detail for understanding the scope of work involved in various items before submission of offers. One complete set of reference drawings and other relevant documents pertaining to subject job / Project covered in the scope of this tender are available at Civil Maintenance Dept. and the same can be referred during working hours from 9.00 AM to 4.00 PM.

For any clarifications required on this tender document, scope of work etc., the bidders shall depute their authorized representatives to HPVP, Visakhapatnam with prior intimation to get clarifications from concerned authorities.

13.4 Manager (Civil) shall be the Engineer-in-charge for herein after referred to as such in the tender.

13.5 Lowest offer need not be the rate acceptable to BHEL-HPVP. BHEL-HPVP reserves the right for negotiation with the L1 bidders or opt for Reverse Auction as per applicable guidelines.

13.6 The following documents (enclosed) shall form part of the contract including this Notice Inviting Tender.

PART - I : TECHNO COMMERCIAL BID

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|--|-------------------|
| a) Scope of Work | : Annexure – I |
| b) Special Conditions of Contract | : Annexure – II |
| c) Rules & Regulations for Operation | : Annexure – III |
| d) Standards / Specification / Drawings for Civil & Structural works | : Annexure – IV |
| e) Minimum Wages as per Central Labour Department | : Annexure – V |
| f) Terms & Conditions of Reverse Auction | : Annexure – VI |
| g) Acceptance to the tender terms & conditions | : Annexure – VII |
| h) Contractor Information | : Annexure – VIII |
| i) Check List | : Annexure – IX |

PART - II : PRICE BID

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|---|---------------|
| j) Price Bid (Schedule of items and Bill of Quantities) | : Annexure –X |
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14.0 TENDER COLLECTION :

Tender Documents can be obtained from 09.05.2016 to 29.05.2016 between 8.00 Hrs. to 16.30 Hrs. from the office of Sr. Manager (OS) by submitting a request letter on the tenderer's letter head along with a Demand Draft for an amount of ₹ 229/- (Rupees Two Hundred Twenty Nine) towards Tender Cost including Sales Tax @ 14.5% in favour of Bharat Heavy Electricals Limited, payable at Visakhapatnam.

Tender Documents can also be downloaded from our Websites www.bhelviz.co.in & www.bhel.co.in. However Tender Cost shall be enclosed along with the Technical Bid without which the Price Bid will not be considered.

15.0 TENDER SUBMISSION :

15.1 The Bid shall be submitted in two parts.

Part-I : Techno-Commercial Bid shall be placed in one cover along with the following documents :

- (i) Earnest Money Deposit of ₹ 60,000/- & Tender cost of ₹ 229/- in the form of Demand Draft / Banker's Cheque drawn in favour of Bharat Heavy Electricals Limited, Visakhapatnam.
- (ii) Income tax returns for last 3 year, Profit & Loss account and Balance Sheet certified by the Practicing Chartered Accountant for the last 3 years
- (iii) Copy of P.F. Registration Certificate.
- (iv) Copy of E.S.I Registration Certificate.
- (v) Experience Certificates in line with eligibility criteria
- (vi) Copy of Service Tax Registration Certificate.
- (vii) Copy of PAN & TIN.
- (viii) Solvency Certificate
- (ix) All other applicable documents as detailed in the tender

Part-II : Price Bid in the prescribed format shall be placed in **another separate cover**.

The tender documents including the various supporting documents enclosed by the bidder should be **signed on all pages with seal**.

Both covers containing Part – I & Part – II bids shall be placed in **another** bigger size envelope duly superscribing the **Tender No. & Subject** on the envelope.

15.2 The tender completed in all respects **shall be dropped** in the **Outsourcing** tender box kept at reception counter, ADM building **latest by 13.00 Hrs. on 30.05.2016**.

Bidder may also send their offers by Post to "Outsourcing Tender Box, Admn. Building, BHEL - HPVP, Visakhapatnam – 530012".

Last date for receipt of tenders is **30.05.2016 up to 13.00 hrs**. BHEL-HPVP is not responsible for any postal or other delays in submission of offers.

Offers received in any other form will not be accepted.

15.3 Submission of offer by a tenderer implies that all the tender documents were read by the tenderer and the tenderer is aware of the scope and specifications of the work, site condition, local conditions and rates at which stores, tools and plant, free / chargeable materials etc., will be issued to him by BHEL - HPVP and other factors having bearing on the execution of the work.

16.0 OPENING OF TENDERS :

Techno-commercial Bids will be opened on **30.05.2016 at 14.00 Hrs.** at Customer Cell, Admn. Building, BHEL- HPVP. The bidders may depute their representatives at the time of opening. The price bid of the technically qualified bidders will also be opened in the presence of representatives of the bidders and the date & time of opening of price bids will be intimated later. In case of reverse auction, the date of conducting reverse auction will be intimated in advance at appropriate time.

If bids are not accompanied by requisite tender cost & Earnest Money Deposit along with Part-I (Techno Commercial Bid), then Part-II (Price Bid) will not be considered for opening.

Yours Faithfully,

For BHARAT HEAVY ELECTRICALS LIMITED,


Sr. Manager (OS)

SCOPE OF WORK**1. INTRODUCTION:**

As a part of Modernisation of BHEL - HPVP unit, the following civil works/ facilities were constructed.

- Length of present LMS shop (Building No.3) bays are extended by 24 Mtrs. on south side and by 5 Mtrs on North side.
- New industrial sheds each of 126 M * 30 M are constructed on North and South sides of the Existing Building No.3.
- Construction of foundations for new equpt & relocated eqpt.
- General civil works mainly comprising the Laying of Roads both new and existing, drains etc.,
The above listed works were completed and the buildings are operational. However, certain Auxillary civil works and the civil works related to 1600 T Press, fixing of trolley track, rail fixing and Gas Manifold station are to be carried out under this tender.

2. Scope of Work:

As explained above, the brief scope of work, under this contract is explained here under for the Auxillary civil works and the civil works related to 1600 T Press, fixing of trolley track, rail fixing and Gas Manifold station etc.

2.1 Civil & Structural works related to 1600 T Press:

These works mainly comprise of

- The 1600 T press comprises of a Cellar level machine shop room. In the existing cellar below the floor level of the shop floor, the existing RCC pedestals and foundations/ part of the foundations, are to be dismantled.
- The RCC flooring of the Cellar is to be chipped of by about 25 to 50 mm.
- Existing RCC Floor is to be chipped off to the required depth (not more than 500 mm) forming pits to construct the New Pump foundations in those pits.
- Construction of New RCC Pump foundations.
- The existing Cellar roof is made with Steel Beams and covered with MS Chequered Plate. The same is to be dismantled and shall be built with the new steel beams and chequered plate with the required openings. All the works related to this work is in the scope of work.
- Providing Foundation pockets, bolts, grouting
- Plastering, Painting wherever required.
- Grouting of Basement on all sides and flooring
- Temporary structures, if any
- Making flooring with Hardonite flooring works after the construction of pump foundations

2.2 Civil & Structural works related to Gas Manifold:

A New Gas Manifold is to be constructed nearer newly constructed South Bay, which comprises the following works, which are in the scope of work.

- Foundation for Liquid Argon Storage tank
- Foundation for Vaporiser
- Hard strand all over the area
- Concrete Pavement approach till tank
- 2 Mtr. High GI Fencing around the storage tank with gates (sketch enclosed)
- Galvalume Sheet roof shed with walls on all three sides of the shed.
- Laying of Approach Road to the Gas Manifold tank, including making sub grade and all layers of the road, as per the details given.

SCOPE OF WORK

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2.3 Trolley track rail fixing:

- In the existing shop floor buildings, Track Rails are to be fixed on the existing floor, by chipping the floor to form trench and fixing plate inserts in the trench and fixing the trolley track rail after duly fabricating the track beam and then fixing on the insert plate by welding the same on the insert plate. (All the details are as per the enclosed sketch.)

2.4 Other Miscellaneous works:

- On the newly extended bays of the LMS building, Crane girders are already in position, at about 15 Mtrs. elevation over which Crane rails are to be laid for an extended portion of 24 Mtrs Long on South side and 5 Mtrs long on North side for all 4 bays. The Rails are to be erected, aligned and fixed with necessary clips etc.,
- In the existing shop floor area, flooring in some parts are damaged. In these areas, the top layer of damaged floor area is to be chipped off and the same is to be redone with ironite flooring.
- Foundation bolts (Expanded Friction grip fastners) are to be fixed in the existing RCC areas, wherever required.
- Any other works as instructed by Engineer – in – charge.

SIGNATURE OF TENDERER WITH SEAL

SPECIAL CONDITIONS OF CONTRACT

1. These conditions should be read in conjunction with general conditions of contract of BHEL, Visakhapatnam – 530012.
2. Water and Electricity required for construction shall be supplied at a single point at free of cost.
3. Any time during construction if it is found that the water is being wasted, penalty at the rate of Rs. 100.00 per day will be levied for those days on which it is found.
 4. The Department has the right to stop the water supply to contractor at any stage without giving any prior notice due to shortage of water. The contractor in such cases has to make his own arrangements for such periods at his own cost.
5. In case of ambiguity in schedule, specification or details the same shall be read / followed as per I.S / CPWD specifications for the respective items in consultation with Engineer-In-Charge and generally confirming to I.S. or CPWD specifications.
6. The contractor should arrange work in general shift only between 8.00 AM to 4.30 PM on all working days of the Department. If required they should also work on Sundays / Holidays as required for some items which are specifically mentioned in the S.O.Q and no extra payment will be made on this account by company.
7. Since the work involves different agencies, contractor should co-ordinate with other agencies to plan the work and ensure the progress of work as directed.
8. In respect of material supplied if used in excess by the contractor over the requirements as determined by the Engineer-in-Charge recovery shall be made from the contractor's bills at the rates fixed by the department.
9. The contractor shall maintain the account of all materials supplied by BHEL, Visakhapatnam and this should be available at site for inspection and for verification.
10. All the rates include all depths / heights and leads / lifts including work at all level unless otherwise specified.
11. Contractor should produce labour license & insurance to cover accidental risk of all categories of workmen under the workmen compensation Act etc.
12. Material required for jobs and fixtures required to fabricate and erect the structural components, but not used up in the works shall be arranged by the contractor. BHEL, Visakhapatnam will not supply such material.
13. The successful tenderer should maintain a site office cum stores within the premises at the site shown by the company and should maintain the minimum stock of all materials to attend the works in short notice. The contractor or his representative should be available at all times at site during office hours to receive instructions.
14. The contractor has to arrange his own tools and plants such as road roller, mixers, vibrators, scaffolding etc., it is not binding on BHEL, Visakhapatnam to arrange these on hire.
15. All tools, plants and materials brought inside the campus should be registered at the security gate while bringing inside. No gate pass will be given to take back the above on completion of work if the contractor fails to show the security department's certification that the material has been brought inside.

SPECIAL CONDITIONS OF CONTRACT

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16. The quantities provided in the schedule are only provisional and may vary according to exigencies of work and no claim can be entertained on this score.

17. CEMENT AND STEEL ARE IN CONTRACTOR'S SCOPE.

18. The contractor shall forward a bar-chart indicating proposal to complete the work within the stipulated period. BHEL, Visakhapatnam reserves the right to fix the priorities and revise the bar-chart. The bar-chart shall be submitted before entering into formal agreement for specific works.

19. The contractor should follow the rules and regulations annexed with for employment of labour by contractors in BHEL, Visakhapatnam.

20. In respect of items where fabrication and erection of structural are involved and erection cannot be taken up immediately due to various reasons, 75% of quoted rate will be paid on completion of fabrication work and balance 25% will be paid on completion of erection.

21. Work Contract Tax on the bill value will be deducted at source at the rates specified by the Government from time to time as per the Act.

22. PAYMENT TERMS

R.A Bill payments will be arranged within 30 days from the date of bill **or** 15 days from the date of clearance of the statutory compliance by IR Department whichever is later.

23. SECURITY DEPOSIT:

Security Deposit shall be collected from the successful tenderers the rate of Security Deposit will be as follows.

- Upto Rs. 10 Lakhs : 10%
- Above Rs.10 Lakhs upto Rs. 50 Lakhs: Rs. 1 Lakh+7.5% of the amount exceeding Rs. 10 Lakhs.
- (Above Rs. 50 Lakhs : Rs. 4 Lakhs + 5% of the amount exceeding Rs. 50 Lakhs.

The security Deposit should be deposited before start of the work by the contractor.

Security Deposit may be furnished in any one of the following forms :

- Cash (as permissible under the Income Tax Act)
- Pay Order, Demand Draft in favour of BHEL.
- Local cheques of scheduled banks, subject to realization.
- Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc., (Certificates should be held in the name of Contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back).
- Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL.
- Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C BHEL, duly discharged on the back.
- Security deposit can also be deposited at the rate of 10% from the running bills. However in such cases at least 50% of the Security Deposit should be deposited before start of the work and the balance 50% may be deposited from the running bills.

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- EMD of the successful tenderer can be converted and adjusted against the security deposit
- The security deposit shall not carry any interest.

Note: Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith).

24. Security Deposit / Bank Guarantee will be released after the maintenance period of 2 months or on closure of contract which ever is later.
25. Income Tax & Work Contract Tax will be deducted as per the statutory rules from time to time. W.C.T. is 5% if TIN number is submitted. If TIN number is not available W.C.T. shall be 20.00%.
26. Tenderer have to pay Service Tax as per the latest prevailing statutory rules from time to time. Paid Service Tax amount will be reimbursed on submission of documentary evidence of payment as per prevailing rules. The present rate of service tax is 14.50% including Swach bharat tax.
27. Any new taxes imposed by Govt. of India / AP State Govt. after the tender submission date shall be reimbursed on submission of documentary evidence of payment.
28. The payments shall be made through online (i.e. RTGS/NEFT) only.
29. The tenderer should satisfy all the statutory obligations required under statues of the Government from time to time.
30. If incomplete tenders in the form is furnished or where total value is not entered, such tenders will be summarily rejected. Management reserves the right to accept or reject any or all the tenders or part thereof without assigning any reason whatsoever. No correspondence will be entertained when once the tenders are decided.
31. The Contractor to execute any other work as per the requirement /direction of in-charge.
32. "MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM II) **or** valid NSIC certificate **or** EM II certificate along with attested copy of a CA certificate (Format enclosed at **annexure-B** where deemed validity of EM II certificate of five years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part 1 in case of two part bid). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefits shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. Documents should be notarized or attested by a Gazetted officer".
33. **Fraud Prevention Policy :**
"The bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice".

SIGNATURE OF TENDERER WITH SEAL

RULES AND REGULATIONS FOR OPERATION

1. The Contractor shall pay the minimum wages to the contract labour as notified by the Central Government from time to time. The Government Order indicating the present rate of minimum wages is enclosed at Annexure – V. **The Quoted Rate shall be firm throughout the contract period. No cost escalation will be paid on any account. The contractor has to consider the future escalation and increase of labour wages while quoting the rate.**
2. The contractor shall pay the wages for the Weekly day of rest and also on Public Holidays being observed by the company.
3. The contract should cover all his labour under ESI scheme to provide Medical facilities and also insurance to cover accidental benefits as specified in the relevant acts.
4. Contractors should have individual P.F. codes. In the absence of the individual P.F Code No. within 30 days of L.O.I, the contract will be treated as cancelled. The contractor should cover the workers under Provident Fund Act and make necessary deposits with the PF Commissioner as per statutory regulations.
5. The contractor should pay the amount towards Bonus, Retrenchment compensation and Encashment of non-availed earned leave to his workmen on completion of the contract and submit proof of such payment along with final bill.
6. The contractor should make his own arrangement for providing TEA / BREAKFAST / MEALS etc., to the labour engaged by him and BHEL, Visakhapatnam shall not issue any subsidized coupons for this purpose.
7. The contractor shall provide identity cards to the labour engaged by him, which will be produced by them on demand to officers or other staff of the company. The company's security personnel shall have the right to check the persons of contractor's employees while going out of office premises and there shall be no cause or grouse on this account either from the contractor or his employees.
8. The contractor shall be responsible for any loss or damage caused to properties belonging to the company by any of the contractor's employees or staff by theft or otherwise and the contractor shall indemnify to the company the value of such properties on demand on that behalf.
9. The contractor shall be responsible to ensure that his employees follow safety rules & regulations as per statutory regulations and also instructions of the company. The company will have the right to object to any unsafe practice and the contractor will abide by the directions of the company in this regard. The contractor shall provide all necessary safety appliances (Safety Jacket, Safety Shoe,Helmet, Gloves & Masks are must for all workers and the other appliances as per the need & requirement of the work) to his laborers and shall be solely responsible for the same.
10. The contractor shall maintain register of accidents and intimate about the occurrence of any kind of accidents and circumstances leading to the accident to the In-charge (Safety) and In-charge (Civil) of the company.
11. The contractor shall not employ Sub-Contractor without the prior approval of the company.
12. The contractor shall maintain the following registers in the prescribed manner under the statute and shall ensure availability of up-to-date records near the work place.

RULES AND REGULATIONS FOR OPERATION

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- a. Muster Roll
 - b. Muster Roll-Cum Wage Register
 - c. Register of Over Time
 - d. Register of Fines
 - e. Register of Advances
 - f. Register of Deductions
 - g. To issue Employment Card to the Workmen
 - h. To issue Wage Slip
 - i. In case of termination of employment, the contractor shall issue service certificate
13. The agreement / contract shall remain in force for a period as per Work order/LOI or unless determined earlier at the option of the company or happening of any of the circumstances mentioned below.
- a. If the contractor fails or neglects to render the said services or any of them to the satisfaction of BHEL, Visakhapatnam or if the contractor commits breach of any of the rules and regulations.
 - b. If the business of the contractor is wound up or dissolved or if any receiver is appointed or attachment is levied in respect of any of his properties and assets.
14. BHEL reserves the right to terminate the contract, if contractor fails to work satisfactorily with **15 Days notice** in writing.
15. Notwithstanding any contrary provision herein contained this agreement may be renewed at the option of the company for any further period on the same terms and conditions as herein contained except the rate mutually agreed on such renewal and on the exercise of such option of the company and contractor shall immediately enter into a renewed agreement with the company in writing.
16. The right hereunder and / or this agreement cannot be assigned or otherwise transferred by the contractor to any person or persons or any corporation whatsoever without the written prior approval of the company.
17. The contractor shall take necessary license in respect of his trade / business and the contractor shall be personally liable in respect of this agreement. The contractor shall hold valid license as per the contract labour (Regulation & Abolition) act for engagement of labour.
18. The contractor shall at his own costs, if required under the statutory obligations, effect necessary insurance in respect of the said staff, materials and other personnel of persons to be employed by the contractor in connection with his rendering of the aforesaid service to the company and shall comply with the provisions of Andhra Pradesh Shops & Establishment Act, Contract Labour (regulation & abolition) Act. Payment of wages Act, Minimum Wages Act, ESI Act, Employees provident Fund (Family Pension Fund) Act. 1972, Bonus Act if applicable to them and shall keep the company indemnified from all Act or omissions, faults, breaches and / or any claims, demands, liabilities, actions, proceedings, cost, charges, loss injuries, and expenses for which the company may be put or involved as a result of the contractor's failure to fulfill any of the obligations herein and / or statutes and / or any bye-laws or rules framed there under or any of them.

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19. During the contract period, no reimbursements whatsoever will be made to the contractor over and above the rate quoted by the contractor and agreed to by the company for all the items.
20. The contractor shall intimate to the Manager (IR) / IR Department officials in writing about the payment days during a month and the wages for the workmen shall be paid in the presence of the representatives of the concerned department and obtain the signature of the department representative in the wages register.
21. The contractor shall be responsible to make payment to the workers on working days at the work site on the date notified in advance. In case of termination of employment due to completion of work, the contractor shall ensure final payment to the concerned workmen within 48 hours of the last working day.
22. No wage period shall exceed one month
23. The contractor shall exhibit a notice at his work place indicating rate of wages, hours of work, wage period, date of payment of wages, name and address of Inspector having jurisdiction. This notice is required to be exhibited in English and also in local languages.
24. The contractor shall be responsible to follow the various laws applicable to his workers such as contract labour (Regulations & Abolition) Act, Minimum Wages Act, Payment of Wages Act, Payment of Bonus Act, Provident fund Act, Employees State Insurance Act, etc. and the rules made there under from time to time.
25. Any dispute arising out of the contract will be referred to the Unit Head whose decision is final and binding on both the parties.

SIGNATURE OF TENDERER WITH SEAL

THE GENERAL CONDITIONS OF CONTRACT ARE AVAILABLE WITH THE HEAD – CIVIL DEPARTMENT. CONTRACTORS MAY REFER / VERIFY THE SAME.

AMENDMENT TO THE GENERAL CONDITIONS OF CONTRACT

CLAUSE 32 MAY BE READ AS FOLLOWS.

32. LIQUIDATED DAMAGES

In the event of any delay in completion of work of part thereof as per agreed schedule due to reasons other than those specifically exempted in this contract, BHEL, Visakhapatnam, may deduct from the considerations due to the contractor as liquidated damages a sum calculated at 0.5% of the contract price for each full week of delay subject to a maximum of 10% of the contract price. It is understood and agreed that such amounts do represent the losses suffered by BHEL, Visakhapatnam because of delay in work by contractor and it shall not be necessary for BHEL, Visakhapatnam to establish the actual amount of losses suffered irrespective of whether the work or part thereof could be put to any use by BHEL, Visakhapatnam or BHEL's client.

CLAUSE 32.1 IS DELETED

AMENDMENT TO THE CLAUSE 57 MAY BE READ AS FOLLOWS

57. ARBITRATION AND LAWS

Except where otherwise provided for in the contract, all questions and disputes relating to the meaning of the specifications, drawings and instruction herein as to the quality of workmanship or material in the work or as to any other question, claim, right, matter or thing or any dispute whatsoever in any way arising out of or relating to this contract, shall be referred to the sole arbitration or any person who shall be appointed by Unit Head, Bharat Heavy Electricals Limited, (HPVP), Visakhapatnam at his sole discretion. It shall have no objection to any such appointment even if the arbitrator so appointed is an employee of BHEL, Visakhapatnam, its branches / offices. Such an appointment of arbitrator shall not take place unless and until a written request for appointment of arbitrator from any of the parties to the contract has been received by the Unit Head as aforesaid.

The arbitrator to whom the matter is originally referred or the arbitrator who has been appointed in place of the arbitrator originally appointed, dies or unable to act as arbitrator for any reasons whatsoever, the Unit Head as aforesaid, shall appoint at his sole discretion any another person to as arbitrator in place of the arbitrator originally appointed, as the case may be. Such person appointed as arbitrator shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

The arbitrator shall give his reasoned award. It is term of this contract that no person other than a person appointed by such Unit Head as aforesaid should act as an arbitrator and if for any reasons whatsoever that is not possible, the matter is not to be referred to arbitration at all.

Subject as aforesaid, the provisions of arbitration Laws in India or any statutory modification re-enactment thereof and the rules made there under from time to time and or the time being in force shall apply to the arbitration proceeding under this clause.

AMENDMENT TO THE CLAUSE 59 MAY BE READ AS FOLLOWS :

59. DISPUTES – LEGAL JURISDICTIONS

Notwithstanding anything contained in any document whatsoever, all cases, suits, matter, petitions and all other actions under law arising out of and relating to this contract including that may arise out of bank guarantees and arbitration under this contract, shall be tried, instituted, filed and auctioned only in the courts, tribunals and forums etc., situated within the territorial jurisdiction of Visakhapatnam even though such jurisdiction may also vest with other courts, tribunals and forums situated in other places of the country.

While invoking writ jurisdiction, the parties shall prefer such petitions and try the same only in the High Court of Andhra Pradesh, Hyderabad.

SIGNATURE OF THE TENDERER

**STANDARD / SPECIFICATION / DRAWINGS
FOR
CIVIL AND STRUCTURAL WORKS**

STANDARD SPECIFICATION FOR CIVIL AND STRUCTURAL WORKS**1. Site Clearance**

All the area upon which the construction is to be carried out and areas which are required by the Contractor for his construction facilities are to be cleared off all rubbish and objectionable matter at Contractors own cost. Trees, if any, shall not be uprooted or cut without the prior approval of the Engineer-in-charge. All spoils, unserviceable materials and rubbish shall be burnt or removed from site. Usable materials, saleable timber, fire-wood etc., shall be stocked properly at work site in the manner as directed by the Engineer-in-charge. The cost of clearing the areas shall be deemed to have been included by the tenderer in his general rate.

2. Earthwork for Foundations

Earthwork excavation for foundations and filling in foundations shall conform to I.S1200 –part-IS & 2720. The area to be excavated or filled in with excavated materials shall be clearly demarcated in the field by the Contractor. Excavation shall be done to lines and levels defined. Excavation shall be carried out to such widths, lengths, depths, profiles and grades as shown in the drawing or as may be specified by the Engineer – in – charge. Rough Excavation may be carried out up to a depth 15 cm less than the final level but the balance shall be excavated to precise level with special care. All soft pockets of soil met with even below the final level shall be removed and the excavation filled up as directed by Engineer-in-charge. The methods of excavation shall in every case be subject to the approval of the Engineer-in-charge and the contractor shall ensure the safety and stability of the excavations, being executed by him as well adjacent buildings, structures, services and other works in the vicinity of the site of work. Wherever necessary Engineer-in-charge may direct that the sides of the excavation should be timbered and shored at the contractor's own cost, adopting a proper method approved by the Engineer-in-charge. Notwithstanding the above, should any slip occur, the contractor shall remove all the slipped materials from the excavated pit, at his own cost. He shall also make good at his own all damages caused to the work as well as adjacent buildings, structures etc., as a result of the slip, referred to.

All excavation work shall be subject to inspection and approved by the Engineer-in-charge before any further works in the excavated areas allowed to commence. Should any excavation be carried out beyond the specified depth, the contractor should fill it up at his own cost with the same type and class of material as it is proposed to be laid over the excavated portion. No payment will however be made to the contractor on his account.

The contractor shall ensure that the excavations and the structures under construction are kept free from water logging at all stages of construction. He shall take all necessary precautions and `streams, aquifers, springs, surface flows etc., are excluded effectively so as to ensure that the works are carried out in a reasonable dry conditions in accordance with the construction schedule.

Back filling around the foundations, trenches, plinth and under the floor shall be done in accordance with I.S:1200 & I.S2720. The finished level of the plinth filling shall be trimmed to the slope required to be given to the finished floor. Back filling, watering and consolidation of excavated earth in layers etc., complete as per specifications shall be done unless otherwise stipulated in the tender schedule.

Removal of Hard rock by Blasting

This shall include all rock occurring in large masses which cannot be removed except by blasting. Blasting shall be done as per the instruction contained in I.S:4701 and as instructed by the Engineer-in-charge. When rock blasting has to be done adjacent to structures, the following precautions shall be observed.

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- All blasting should be completely muffled to prevent damage by flying pieces.
- Blasting within 3 meters of the structures shall be avoided
- No blasting should be done within 1.5 meters of concrete / masonry structures.
- An isolated boulder extending under the existing structure but projecting within the area of blasting should be blasted.
- The contractor shall be responsible for all damages caused by blasting and shall replace or repair the damaged structures at his own cost.

3. Plain and Reinforced Cement Concrete Works :

All design and construction shall be performed in accordance with the Indian standard code of Practice for plain and reinforced concrete – IS 456. Any Special requirements noted on the drawings or bill of quantities shall govern over the provisions of this specifications. Controlled concrete shall be used wherever specified in the schedule of items complying with all requirements of IS : 456 and as per special specifications appended herewith.

The coarse aggregate to be used shall be of hard broken granite stone jelly of various sizes as specified under respective items in the Bill of Quantities, conforming to IS 383 latest edition. The Engineer-in-charge may require the contractor to carryout moisture content tests in both fine and coarse aggregates. For determination of moisture content IS – 2386 shall be referred to. The amount of water to be added shall be then adjusted to compensate for any observed variation in the moisture contents. Proper control of mixing water is deemed of paramount importance. Mixtures with automatic water measuring drums shall be used or else. Water should be measured by volume in calibrated buckets. All measuring equipments shall be maintained in a clean serviceable condition and the accuracy periodically checked and got certified by the Engineer-in-charge. The contractor shall carryout slump tests apart from taking test cubes at regular intervals. All such methods of sampling and analysis of concrete shall be in accordance with IS – 1199.

Mixing of concrete shall be strictly carried out in an approved type mechanical mixer. The mixing equipment shall be capable of combining the aggregates, cement and water within the specified time (not less than 2 Minutes) into a thoroughly mixed and uniform mass and of discharging the mixture without segregation. Mixing shall be continued until there is a uniform colour and consistency, Concrete shall be handled from the place of mixing to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of any of the ingredients. Before depositing the concrete, all debris and dirt shall be removed from the space to be occupied by concrete. Concreting shall not be done unless the formwork conform to the shapes, lines and dimension as shown in the drawings.

Unless otherwise approved, concrete shall be placed on single operation to the full thickness of slabs and beams and similar members and not exceeding 1 metre deep in walls, columns and similar members. Concrete shall be placed continuously until completion of the part of the work between construction joints or as directed by the Engineer-in-charge. The concrete after being laid shall be compacted by means of vibrators of approved type under proper supervision as directed by the Engineer-in-charge. Care should be taken to avoid segregation and formation of air bubbles. The whole process starting from the mixing of concrete to the placing and compaction shall not take more than 20 minute and the process shall be completed before the initial setting takes place. Curing shall be accomplished in accordance with IS-456 by keeping the concrete covered with a layer of sacking, canvas or similar absorbent materials and kept constantly wet for the period as directed by the Engineer-in-charge.

Reinforcement

All reinforcement shall be clean and free from pitting, loose mill-scales, dust, loose rust and coats of paint, oil or other coatings which may destroy or reduce bond. General construction details and workmanship relative

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to reinforcement including bar bends, lap splices and installation shall be in accordance with the IS-2502 as well as IS-456. All bars be bent as per the bar bending schedules indicated in the drawings or supplied separately relevant to particular drawing. The contractor shall in all cases verify himself the correctness of schedules, giving the number, length and the bending details of the bars. The numbers, sizes, shape and position of all the reinforcement shall, unless otherwise, directed or authorized by the Engineer-in-charge be strictly in accordance with the drawing. The reinforcement shall be adequately held in position by 18 / 20 SWG soft black annealed binding wire. The contractor must obtain the approval of Engineer-in-charge for the reinforcement placed, before any concrete is placed in the form. All reinforcing bars shall be so tied as to form a rigid cage to prevent displacement before or during concreting. Rate quoted for reinforcement should include cost of transporting M.S. Rods / CTD bars from BHEL - HPVP Store to site of work, cleaning, cutting, bending, placing, binding with contractor's own binding wire and providing necessary cover blocks of concrete but excluding cost of steel which shall be supplied free of cost at BHEL - HPVP Stores.

Form Work

Formwork shall conform to the shape, lines and dimensions of concrete and RCC structures as shown in the drawings and shall be well within the permissible tolerance. Formwork for concrete shall be of plywood, steel, good seasoned timber or other approved materials, properly designed easy for removal and cleaning. They shall be of sufficient strength and rigidity to maintain their position and shape under loads incidental to placing concrete. The number of props, their sizes and dispositions shall be such as to able safely carry the full dead load area constructional loads. The arrangement and alignment of formwork shall be got approved by the Engineer-in-charge prior to concreting. However this shall not relieve the contractor from his responsibility for proper work and safety. Formwork shall be sufficiently tight to prevent loss of cement slurry from the concrete. All joints and holes in the formwork shall be caulked with putty jute cloth or other approved materials to the satisfaction of the Engineer-in-charge. The stripping time for the shuttering and the formwork shall in general conform to the provisions in the relevant clauses of IS 456. Unless otherwise specified rates for reinforced cement concrete shall include cost of centering, shuttering charges also.

Expansion and Other Joints

Expansion Joints in concrete structures shall be provided at specified places as indicated in the drawings. The material shall be as specified by the Engineer-inc-charge, expansion joints, with or without metal strip shall be as shown on drawings the filler shall be "EXPANDEX JOINT FILLER" premoulded non – extrudent type fibrous joint filler impregnated with bitumen conforming to IS : 1838. The filler shall be durable, waterproof, compressible and shall have a high degree recovery after compression is released, ensuring thereby that no free space develops in the expansion joints. The top 25 mm, or as specified in the drawings, shall be sealed with "SHALITEX SEALING COMPOUND" or equivalent after application of approved primer.

4. Stone Masonry

General: Stone masonry shall conform to IS, 1123, 1127,1597 part I & II, Stone shall be obtained from the approved quarry and shall be free from decay and weathering.

All stones shall be thoroughly wetted before use. The mortar used for jointing shall be as specified under the respective items of the "Bill of Quantities".

The walls shall be carried up truly plumb. Every stone shall be carefully fitted to the adjacent stones so as to form neat and closed joints.

To give sufficient lateral bond, vertical joints shall be avoided. Prescribed number of headers as required shall be provided to give sufficient transverse bond. At junctions of wall the stones each alternate course shall be so carried into each of the respective walls as to unite the work thoroughly. Where breaks are unavoidable in carrying up the work continuously in horizontal course sufficiently long steps shall be left to join the old and

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new work building of two thin faces and filling up the middle with small stuff or dry packing shall be strictly avoided. When plastering or raised pointing is not required to be done joints shall be struck flush and finished simultaneously.

Coursed Rubble Masonry

Coursed rubble masonry shall conform to IS 1597 (part-I) & 1123 Faces shall be accurately squared and all face joints shall be dressed at right angles. This bushing on the facing stones shall not project more than 38mm.

Face stones shall be laid alternate headers and stretchers. Depth of each course shall not be less than 150 mm. No course shall be greater than any course below. The height shall not exceed the breadth of stones of face. No stone shall tail into the wall less than its height. No pinning shall be allowed on the face. The stones shall be solidly bedded set full in mortar with joints not exceeding 12 mm in thickness.

Random rubble masonry

Random rubble masonry work shall conform to IS 1159 (part-I) Stones shall be hammer dressed at faces and joints to enable them to come into close proximity with each other. The face stone shall be laid headers and stretchers alternately, so as to break joint by at least 75mm. Thickness of joint shall not exceed 12mm. No pinning shall be used on the face and face stone shall extend well back into the headers. Stones less than 130 mm. in height shall not be used on the face.

Bond stones running through the wall shall be provided at 1.8M intervals in walls up to 0.60 M. thickness and if the wall is more than 0.60 M. thick a line of headers shall be laid from face to back each header overlapping the other by at least 150 mm.

5. Brick Masonry

First class Bricks : Brick shall be sound, hard, tough, rectangular in shape and size, well burnt of uniform deep red or copper colour and conform to IS – 1077

Brick shall be free from cracks, chips, flaws, stone or humps of any kind. Bricks shall be homogeneous in texture and emit a clear ringing sound on being struck and shall have a minimum compressive strength of 50KG / sq.cm. and shall not absorb water more than 20% of its weight, when soaked cold water for 24 Hrs. All bricks shall be table moulded.

Second Class Bricks: These shall be ground moulded but should otherwise conform to the specifications of first class bricks except for some surface cracks are allowable. These shall have minimum compressive strength of 50 Kg./sq.cm.

Samples of each type of brick, shall be got approved by the Engineer-in-charge before being used. All subsequent deliveries shall be up to the standards of the approved samples.

Brickwork shall conform to IS 3102, 2177 and IS - 2212.

Brick works shall be classified as first or second class according to the classification of bricks used and the method of laying. The thickness of joints shall not exceed 6 mm. In first class brickwork and 10 mm in second class brick work.

Bricks shall be well soaked before use on works for at least 6 hrs. The soaked bricks shall be kept on wooden planks or platform. Brick required for masonry with clay or lime mortars shall not be soaked.

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Brickwork shall be laid with specified mortar to be prepared in accordance with IS –2250. Brick works shall be laid in English Bond unless otherwise specified. Half or cut bricks shall not be used except when needed to complete the bond. Each course shall be taken up truly plumb, if battered, the batter is to be truly maintained. The level of brickwork shall be checked up at every one metre interval. Bricks shall be laid with frogs upward, while laying bricks shall be thoroughly bedded and flushed in mortar and taped into position with a wooden mallet and the superfluous mortar removed. Walls of all structures shall be carried up regularly in all cases, leaving no part, one metre lower than the other. Where the masonry of one part has to be delayed, the work shall be raked back according to bond (and not toothed) an angle not exceeding 45 Deg. But the raking back should not start within 60cm. of a corner vertical joints in alternate courses shall come directly over one another. The brickwork shall not be raised more than 14 courses per day. All iron fixtures, pipes, conduits, drains, sleeves, bolts, holdfasts of doors and windows etc. which are required to be built in walls shall be embedded in cement mortar or cement concrete as specified, in their correct position as the work proceeds.

FLY ASH – LIME GYPSUM (FALG) BRICKS- SPECIFICATION

Classification :

Class	Average compressive Strength (N/mm ²)	
	Not Less Than	Less Than
10	10.0	15.0

All other physical characteristics to be as per IS 12894 : 1996

GENERAL REQUIREMENTS :

Visually the bricks shall be sound, compact and uniform in shape. The bricks shall be free from visible cracks, warpage and organic matter.

The bricks shall be solid and with or without frog 10 to 20 mm deep on one of its flat side.

The bricks shall have smooth rectangular faces with sharp and square corners.

DIMENSION AND TOLERANCES :

The size of the fly ash-lime bricks shall be 190 mm x 90 mm 90 mm. The tolerance on length shall be + or – 3 mm and that on breadth and height shall be + or – 2 mm.

Note : By agreement between the purchaser and the manufacturer, fly ash-lime bricks may be manufactured in other sizes also the tolerance requirements on length, breadth and height shall remain the same as given below.

MATERIALS :

- Fly Ash :

Fly ash shall conform to Grade 1 or Grade 2 of IS 3812 : 1981

- Bottom Ash :

Bottom ash used, as replacement of sand shall not have more than 12% loss on ignition when tested according to IS : 1727 :1967

- Sand :

Deleterious materials such as clay and silt in sand shall preferably be less than 5%. Any change in type of brick will be informed to the contractor and will be incorporated with mutual agreement.

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Joints

Joints shall be restricted to 6 mm in first class brickwork and 10mm in second class brick work. All bed joints shall be normal to the pressure upon them, radial in arches and at right angles to the face in battered retaining walls. Care shall be taken that all joints are fully mortared (proportion as specified in the schedule items) well flushed up and in case where no pointing to be done, neatly struck at the work proceeds. The joints in faces which are to be plastered or pointed shall be squarely raked out to a depth of 12 mm while the mortar is still green. The raked joints shall be well brushed to remove loose particles. After the work the faces of work shall be cleared well by brush so as to remove any splashed mortar during the course of raising the brickwork.

Curing

Green work shall be protected from rain by suitable covering. Masonry work shall be kept thoroughly well watered on all faces for at least 10 days after completion. In case of fat lime mortar curing shall commence two days after laying of masonry and shall continue for seven days.

6. Scaffolding

Scaffolding will generally be single but may be double if warranted for the particular work as approved by the Engineer-in-charge. The contractor shall take all measure to ensure safety of work and the working people.

Payment for brickwork shall be made on cubic metre basis on the volume of actual work done. Half brick wall and brick on edge wall shall be paid on square metre basis. The rate of brick work shall include scaffolding and all items mentioned above and no extra payment will be made for cutting bricks if required either for openings or for rounding or insertions or for recesses at the time of brick wall construction.

7. Damp Proof Course

Damp proof course shall either be with cement concrete or with cement mortar of specified thickness as mentioned in the relevant item of schedule. Damp proof course shall not be carried across doorways. It shall be laid for all walls except verandah retaining wall or for particular wall only directed by the Engineer-in-charge. It shall be laid flush with floor level or as instructed by the Engineer-in-charge.

Damp proof course with cement concrete shall be of 25 or 38 mm thick in cement concrete M15/M20 as specified using 12mm. and down size aggregate well rammed and smoothed with trowel. It will be kept wet for 40 hours and after it has dried, two coats of hot bitumen shall be applied over it and allowed it to dry after which sand shall be sprinkled over it.

Damp proof course with cement mortar shall be 12 or 20 mm thick in cement mortar 1:3 well mixed with water properly compound of approved made and as specified by manufacturer.

8. Cement Plastering:

Cement plastering shall be in accordance with IS – 1661 and IS 2394 & 1200 (part-IX) Cement mortar shall conform to IS – 269. The mortar of specified mix and thickness shall be used.

The surface to be plastered shall be thoroughly cleaned so that it is free from dust, oil, salts etc., The joints of masonry shall be raked out to a depth of at least 12 mm. On cement concrete surfaces the surface shall be cleaned with wire brush and scarified by lines with trowel or hacking done. The surfaces in both cases shall be washed properly and kept wet for 4 hours before plastering is commenced.

Plastering shall be started from top and gradually worked down towards the floor. It shall not at any place be thinner than specified. To ensure even thickness plaster of about 15 cm X 15 cm shall be first applied horizontally and vertically at not more than 2 metres intervals over the entire surface to serve as gauges.

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The surface of these gauges shall be truly in the plane of finished surface. The mortar shall then be laid in the wall or other surfaces between the gauges and finished even. All corners shall be rounded to a radius of 24 mm unless otherwise directed. The contractor shall not be paid for any extra thickness of plaster done than as specified.

Plaster, when more than 15 mm thick shall be applied in two coats, a base coat followed by the finishing coat. Thickness of the base coat shall be just sufficient to fill up unevenness in the surface, no single coat, however, shall exceed 12mm in thickness. The under coat shall be roughened or scratched before it is fully hardened.

Curing shall start 24 hours after the plaster is laid. It shall be kept wet for 14 days. During this period it shall be suitably protected from all damages at the contractor's cost by such means as approved by the Engineer-in-charge.

Any cracks which appear in the surface shall be cut out in rectangular shape and redone as directed by the Engineer-in-charge. Wherever specified standard waterproofing compound as approved by the Engineer-in-charge shall be added to the mortar at the rate of 2% or as specified by the manufacturer by the weight of cement for which the rate shall be paid separately. The rate for plastering shall include cost of scaffolding, swing etc., needed for the work with labour and material all complete.

9. Steel Door, Windows and Ventilators:

All steel doors, windows and ventilators shall conform to IS – 1038, IS – 1361 and IS 1081 or equivalent as mentioned in the bill of quantities and as approved by the Engineer-in-charge.

Rolled steel sections shall conform to IS – 226. The sections shall be cold straightened and finished goods shall be free from bends and other defects. Materials used in the fabrication shall be the best procurable and conforming to relevant IS specification. Thickness and specification of the glass to be provided shall be as indicated in the relevant item of the bill of quantities. Glass shall be free from flaws, specks, bubbles, etc., Bolts, nuts, screws, peg stays and other mild steel fittings shall be treated for corrosion as per relevant Indian Standards. Putty for glazing shall conform to IS –420.

Doors, windows and ventilators, etc., shall be truly square and free from twist and warp. They shall be constructed of sections which have been cut to the required lengths and welded or riveted at the corners as per standard specifications.

All steel surfaces shall first be thoroughly cleaned free of rust scale or dirt and mill scale by approved means and shall be painted with one coat of approved primer conforming IS – 102 before dispatch. Alternatively if specified they may be galvanized by the "Hot dip" zinc spray or electro galvanizing process described IS –1361. Doors, windows and ventilators shall be fixed in positions, as specified under IS 1081.

Whenever contractor is required to supply the doors, windows and ventilators etc., he shall first submit to the Engineer-in-charge, the details about source of supply, detailed drawing and specifications etc., for prior approval.

10. M.S Rolling Shutters :

It shall be of approved quality, made out of 18 gauge 75 mm black laths mechanically operated by reduction gear type mechanism. It shall be fitted with two self-aligning ball bearing with locking arrangements (both inside and outside) including M.S pressed side guides bottom rails brackets and top rolling spring pressed etc., complete provided with locking arrangements for padlocks, pulling hooks, handles, top cover etc., It shall be painted with one coat of approved primer conforming to Is – 102 before dispatch.

11. Wooden Doors, Windows and Ventilators :

All wood work for doors, windows, ventilators cup board, shelves, etc., conform to relevant IS specification and shall be well seasoned teak wood or well seasoned country wood (pillamarudu or karumarudu) as the case may be. Timber shall be best quality and shall be free from knots, injurious open shales, bore holes, decay, soft or spongy spots, hollow pockets and all other defects and blemishes. Timber shall conform to IS 1003 (Part 1). Size of doors, windows and ventilators shall as specified in the relevant item of schedule and detailed drawings and generally in conformity with IS – 1003, part I and part II. The rates for doors, windows and ventilators etc., shall be for the finished work inclusive of fixing them in position with necessary iron hold fasts and furniture fitting of oxidized iron or aluminium or oxidized brass as stated in the description of the relevant items of the bill of quantities and as directed by the Engineer-in-charge. Fittings and furniture shall be of best quality and machine made and robust type. Wherever glazed shutters are to be provided, the cost of glass panes of specified thickness and fixing them in position should be included in the quoted rate. All glass shall be of superior quality from approved manufacturer. In case of solid core flush doors, they should conform to IS:2202 Part I and Part II. The flush door shutters should have a finished thickness as specified in the scheduled item. Flush door shutters shall be obtained from firms of repute as approved by the Engineer-in-charge.

12. ROOFING : (A) R.C.C Slabs :

Roof slab shall be of RCC of specified mix conforming to IS : 456, with adequate main tensile, transverse and adhesive reinforcement of ribbed steel bars of mild steel rounds. Unless otherwise mentioned the rates for RCC slab shall include cost of concrete, centering and shuttering charges, vibration charges, rounding of corners, curing and finishing etc., complete. Expansion joints in reinforced cement slabs shall be as per relevant IS codes. The ceiling should be finished as per standard practice and Engineer-in-charge of No extra payment shall be made towards cost of ceiling plaster necessitated on account of defective centering materials used or poor workmanship.

The top of roof slab shall be finished with weathering course treatment if so specified. The weathering course work shall conform to standard practice & as per relevant IS codes and consist of concrete with broken brick in neat slacked lime of specified thickness finished with one course of pressed split tiles / pressed tiles of specified thickness and size as described in the bill of quantities.

(B) Roofing and Side Cladding with A.C. sheets :

The A.C. sheets shall be of specified and approved quality and shall conform to IS 459- 1962 in all respects. The sheet shall be laid with the smooth side upwards and with a minimum end lap of 15cm. and for every flatter slopes this should be 20cm. The laying operation shall include scaffolding works involved. Sheets shall be secured to the purlins by means of 8mm galvanized iron J or L hook bolts and nuts. The grip of the hook bolt on the side of the purlin shall be not less than 25mm. Each bolt shall have a bitumen washer and galvanized iron washer placed over the sheet before the nuts are screwed down from above. Hole for hook bolts etc., shall be drilled and not punched in the ridges of the corrugations in the exact positions. The diameter of these holes shall 1.5 mm more than the diameter of the fixing bolts. The payment will be square metre basis of the laid area.

13. A.C. Rain Water Pipes

The pipes shall be of standard quality conforming to IS 1628. These shall be straight, true smooth and regular in thickness. They shall be free from cracks and other flaws. The supply shall include all necessary pipe fittings and accessories.

All pipes shall be fixed to wall or columns by standard M.S butt holder clamps of approved make. The spigot of the upper pipe shall be properly fitted into the socket of the lower pipe, such that there is uniform annular space for filling with the jointing materials. One third depth of this annular space is to be filled with spun yarn

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soaked in bitumen of approved quality and properly pressed with caulking tool. The remaining two, third depth of the joint is to be filled with Cement Mortar 1:2 (1Cement : 2 coarse sand) and shall be pressed with caulking tool and finished smooth at the top at an angle of 45 Deg. sloping up.

The rate shall include supplying and fixing pipes with specials and accessories, including sizing as required, jointing, testing, cutting of walls and making good necessary scaffolding etc., complete.

14. Flooring :

Flooring shall consist of a base course of cement concrete of specified thickness and proportion laid over the compacted earth or sand filling as specified and a finishing layer of concrete, mosaic, glazed tiles or any other material as specified to be laid. Flooring work for Factory shop floors as well as mosaic flooring shall be done as per the special specifications.

The bed flooring shall be prepared either level or sloped as per relevant drawing or as instructed by the Engineer-in-charge. Filling in basement with earth or sand shall be done as per standard practice & as per IS codes. On the prepared bed, cement concrete of specified mix and thickness shall be laid and well consolidated.

A. Ellispattern, 1st Sort Flooring

On the clean wet surface of the concrete base before it has set, will be laid a layer of cement concrete to give a finished depth of 20/25 mm over the base concrete. The cement concrete will be of 1:3 proportion (one cement and 3 hard broken stone chippings 3 to 10 mm Size). To make a coloured floor red oxide iron powder or other approved materials should be mixed with cement at the rate 10% of the weight of cement or as directed by the Engineer-in-charge. Ellis pattern flooring shall be done as described under relevant IS codes & as per instruction of Engineer –in-charge

B. Glazed Tile Flooring

The tiles shall be of ceramic white or coloured and of specified dimensions as described in the schedule item. The top surface of tiles shall be glazed with a neat finish of uniform colour and texture and free from flaws, cracks, craze, specks or other imperfections. Tiles shall be true and shape with straight edges, non - absorbing and non – fading. Samples of tiles together with manufacturer's literature shall be submitted to the Engineer-in-charge for approval. Tiles shall conform to IS 177 latest.

Over the prepared surface of the floor a bedding layer of Cement Mortar (1:3) of specified thickness shall be laid-in-proper level and slope using screed patterns. The bedding layer shall be deeply scratched while it is set.

A mortar set bed of 6mm thickness in cement lime mortar 1:1:3 (one cement one lime putty and three sand), shall be laid over the bedding layer. After mortar setting, bed has been leveled, a skin of neat cement shall be trowelled to the mortar setting bed immediately before the tiles are set. As soon as the mortar setting bed has sufficiently hardened, all tiles shall be finally secured in place and gently beaten in and finished surface brought to desired level. When grouting the glazed tiles, special care shall be taken to prevent scratching of the glazed surface. Joints shall be pointed with white or coloured cement to match the tile surface and cured. No joint shall be more than 1.5 mm thick.

15. White Washing and Colour Washing

White washing and colour washing shall be done as per IS 6278. The surface shall be thoroughly cleaned off mortar drops and foreign matter. All patchings must be scraped properly. The white washing shall be done from pure shell lime / Janathacem. Samples of lime shall be got approved by the Engineer-in-charge. The wash shall be applied with a brush, the coats being laid on vertically and horizontally alternatively, each coat being allowed to dry before next coat is applied. For colour washing the desired shade shall be obtained by

mixing approved quantity of colouring matter or distemper with shell lime solution and applied as per white. The contractor shall take every precaution to prevent white wash being splashed on wall, floor and other places and articles not to be white washed. No colour wash shall be done unless a sample pattern of the mixed colour has been approved by the Engineer-in-charge. The rates shall be inclusive of scaffolding charges, cost of ladder etc.,

16. Painting

All painting work shall be done in accordance with IS 427,428, 5410, 2935 & 337 and the relevant Indian Standard Specifications. Paints, varnishes, cement paints etc., shall be the highest grade products of well known approved manufacturer and shall be delivered to site in original sealed containers. It is desired that materials of one manufacturer only shall be used as far as possible. Colours shall be uniform and nonfading. Samples of all colours selected shall be submitted to the Engineer in charge for approval before bulk purchase is made. All finished work shall match corresponding samples kept with the Engineer.

Preparation of Surface :

Before painting wooden surfaces, protruding timber fibres shall be removed and nail marks shall be covered with putty. The surface shall be thoroughly cleaned and sand prepared. In case of steel work it shall be scraped, well brushed and cleaned free of rust, scale dirt. Base preparation for painting concrete, masonry and plastered surfaces shall be carried out as per IS 2395 – Part I. Before actually proceeding with the work of painting the concrete, masonry and plastered surfaces, it shall be verified that the surfaces shall be completely dry, free from efflorescence and alkaline effect.

Application

The primer shall be applied with brushes and spread as evenly and as smooth as possible. For steel work a priming coat of Red Oxide / Zinc Chromate paint shall be applied. Painting shall be done by skilled labourers in a work-man like manner. All coats shall be of proper consistency and shall be well brushed out, so that no brush marks are visible. The under coating should be nearest to the specified colour of the finishing coat. Unless otherwise specified ready mixed synthetic enamel paints shall be used for painting, wood and steel work. Under coats should be completely dry before finishing coat is taken up. Priming coat and under coat shall be rubbed with sand paper and dusted clean. The finished coat of approved paint shall then be applied.

17. Cement Painting

Cement Paint solution shall be applied to the surface with hair brushes in a number of coats to get uniform finish. After the first coat of paints has hardened, it shall be cured with water at least for 24 hours. The surface shall be wetted again before the application of the second coat. At least 24 hours should lapse between the two coats, number of coats shall be as specified in the schedule of quantities. It shall be kept damp atleast for seven days.

18. French Polish

French polish to be used shall comply with IS 348. Polishing shall be obtained by dissolving 1 lbs, of shellac in one gallon of methylated spirit without applying any source of heat. After the shellac has dissolved ¼ lbs of cobalt, ¼ lbs of lobano and 0.4 oz of crystals of desired pigment shall be added. The solution shall be applied with a pad of fine muslin cloth tied as per general practice. The pad shall be dipped into the solution and wrung with fingers and be rubbed hard on the surface in this way, the first coat is to be given after this gets dried up, the successive coats shall be given in the same fashion till the mirror like surface is obtained. The wood to be polished shall be first applied with a filler composed of 1.25 Kg. of whiting mixed with one litre of methylated spirit and then sand papered when dry. The finished surface shall have uniform texture and gloss. Approved transparent sealer shall only be used in base preparation.

SPECIAL SPECIFICATION FOR CONTROLLED CONCRETE

a) PROPORTIONING MIX:

The proportion of aggregate, Cement and water to be used for controlled concrete shall be designed by preliminary tests of the materials to be actually used to obtain the densest to workable concrete requiring the minimum quantity of cement paste for binding the materials to give the required strength. However the maximum total quantity of aggregate by weight per 50 kg. of cement shall not normally exceed 450kg All proportions shall be by weight. However water may be added by weight or volume.

b) MIX DESIGN:

Immediately upon the receipt of the award of the contract, the Contractor shall inform the Engineer-in-charge the exact location of the sources of materials which he proposes to use and get the materials approved. The mix with the actual approved materials to be used shall be got designed by the Contractor in an approved laboratory chosen by BHEL - HPVP and got approved by the Engineer-in-charge. These proportions shall be used so long as the materials continue to be the same quality and from the same sources. If during the progress of work, the Contractor wishes to change the materials, the proportions shall be fixed on the basis of fresh preliminary tests to give the required strength. No change of materials shall be allowed unless fresh tests with new materials show satisfactory results.

c) STRENGTH REQUIREMENTS OF CONCRETE:

Controlled concrete shall be in the following grades, M 15, M 20, M 25, M 30, M 35 & M 40. The concrete mix shall be designed to produce the grade of concrete having the required workability and characteristic strength not less than the appropriate values (as per I.S. 456) as given in table below:

Sl. No	Grade of. Concrete	Specified Characteristic Cube Strength	
		Preliminary test N/mm ²	Works test N/mm ²
1.	M 15	20	15
2.	M 20	26	20
3.	M 25	32	25
4.	M 30	38	30
5.	M 35	44	35
6.	M 40	50	40

d) WORKABILITY OF CONCRETE:

The proportions chosen shall be such that the concrete is of adequate workability for the conditions prevailing on the work in question, and shall be properly compacted. Water shall be added to the mixer to give the required workability. The water content of each batch shall be adjusted as necessary to maintain the required workability with simultaneous adjustment of cement concrete such that the water cement ratio is not changed. The workability tests shall be carried out in accordance with IS : 1199 - Latest, "Methods of sampling and analysis".

Workability of concrete shall be controlled by direct measurement of water content, making allowance for any surface water in the fine and coarse aggregates. Allowance shall be made for surface

water present in the aggregate when computing the water content. Surface water shall be determined by one of the field methods described in IS : 2386, Part III.

e) CONSISTENCY AND SLUMP:

The concrete shall have a consistency such that it will be workable in the required position. It shall be of such consistency that when properly vibrated it will flow around reinforcing steel and all embedded parts. The slump for concrete as determined by slump tests as per Indian Standard 456 (latest edition) shall not exceed the maximum slumps indicated below for each type of construction as approved by the Engineer-in-charge.

	Workability Slum in MM		Type of Construction
	Min.	Max.	
Medium	40	80	All RCC works

The contractor shall not place concrete having a slump outside the limits specified without the approval of the Engineer-in-charge.

At least one slump test shall be made for every compressive strength test carried out. More frequent tests shall be made if there is a distinct change in job conditions or if required by the Engineer-in-charge.

f) TESTS:

Test shall conform to the specifications laid down in IS : 456. These tests shall be got done in an approved laboratory and in accordance with IS : 516 - Latest at the cost of the Contractor (for making necessary cube moulds, transporting the cubes to the Laboratory and all other incidental etc.). The test fees for the cubes shall be borne by the contractor. In order to ensure proper quality control sampling of the concrete of each specification placed on any day in work shall be done in accordance with the following table.

Quantity of Concrete in work	Total Number of samples (each sample to consist of 6 test cubes)
Upto 5.00 Cu.m.	1
Greater than 5.00 Cu.m. and less than 15.00 Cu.m	2
Greater than 15.00 Cu.m. and less than 30.00 Cu.m.	3
Greater than 30.00 Cu.m. and less than 50.00 Cu.m.	4
	Greater than 50.00 Cu.m. 4 + one additional sample for each additional 50 Cu.m. or part thereof.

- The sampling shall be spread as evenly as possible throughout the day. When wide changes in weather conditions occur during concreting, additional samples may be taken as desired by Engineer-

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in-charge. Each sample shall consist of 6 cubes of 15 x 15 x 15 cm concrete. Test cubes shall be kept immersed in water until required for test which will be usually at 7 days and minimum crushing strength of not less than the following:

Grade of Concrete	M 15	M 20	M 25	M 30	M 35	M 40
Crushing strength in N/mm ² at the end of						
• 7 days	10	13.50	17	20	23.50	27
• 28 days	15	20	25	30	35	40

All costs connected with the preliminary tests for proportioning the mix, sampling, curing, handling, other incidental charges, labour charges and cost of materials shall be borne entirely by the Contractor. Testing charges for cubes (work tests) shall be borne by contractor. Such testing shall normally be conducted at the BHEL - HPVP Central Laboratory or any other approved laboratory as directed by the Engineer-in-charge.

All samples for tests shall be taken in the presence of Engineer-in-charge and the Contractor or his authorised agents.

A set of six specimens from random mixer batches, shall constitute a test, three being tested for 7 days and three being tested for 28 days strength.

The strength test result shall be the average strength of the three companion test specimens, tested at 28 days, except that, if one specimen in a test shows manifest evidence of improper sampling, moulding or testing, the result shall be discarded and the remaining two strengths averaged.

- Normally, 7 days and 28 days tests shall be made on specimens. For any mix, a correlation between 7 days and 28 days strengths may be made in the laboratory. Soon after a job starts, a similar correlation will be evolved for samples of a concrete taken from the mixer. After that correlation has been established, the results of the 7 days test may be used as an indicator of the compressive strength which should be expected at 28 days, provided such results are consistent, if 7 days tests shown compressive strength that are too low, corrective measures shall be taken at once, at the Engineer's direction, without waiting for the results of the 28 days tests.

- Each class of concrete shall meet the following strength requirements:

The average of any three consecutive strength tests shall have a value equal to or greater than the specified strength subject to the condition that only one out of three consecutive tests may give a value less than the specified strength but this shall not be less than 90% of the specified strength.

- In the event that concrete tested in accordance with the requirements of this specification, fails to meet the requirement, the Engineer shall have the right to require any one or all the following.

- Changes in the concrete mix proportions for the remaining work.
- Curing and testing of the concrete represented by the tests which failed.
- **Replacement of any such portions of the structure. (No payment for dismantled concrete, associated from worker or reinforcement shall be made. Embedded fixtures, reinforcement and adjoining structures, damaged during dismantling shall be made good by the Contractor at his own expense).**
- Extended curing of the concrete represented by the specimen.
- The contractor shall carry out all such measures as directed at his own expense.

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Load tests of structural members may be required by the Engineer when the strength of the job control tests falls below the required strength and is not acceptable as per "Acceptance Criteria" stated earlier. The entire cost of the load test shall be borne by the Contractor. If the load testing is decided by the Engineer, the member under consideration shall be subjected to a superimposed load equal to one and quarter (1.25) times the specified superimposed load used for design and this load shall be maintained for a period of 24 hours before removal.

The detailed procedure of the test shall be decided by the Engineer-in-charge.

If, within 24 hours of the removal of the load, the structure does not show a recovery of at least 75 percent of the deflection after the 24 hours under load, the test should be repeated. The structure should be considered to have failed to pass the test if the recovery after the second test is not at least 80 percent of the maximum deflection occurring during the second test.

If the member shows evident failure, such changes as are necessary to make the structure adequately strong, shall be made by the contractor free of cost to the Department. If on the other hand, the failure becomes apparent, the Engineer under special circumstances, can retain the portion of the structure under test, provided suitable strengthening and or load dispersed arrangement is feasible. Cost of such strengthening or load dispersed arrangement shall be borne by the Contractor.

Load test shall not be made until the expiry of 56 days of effective hardening of the concrete.

If a portion of the structure is found to be unacceptable it shall be dismantled and replaced by a fresh structure as per specification. The cost of such dismantling and reconstruction should be borne by the Contractor.

The proportions of cement, fine aggregate, coarse aggregate and water necessary to produce a concrete mix which will fulfill the requirements of this specification for each grade of concrete shall be determined on the basis of trial mixes conducted with the samples of the material to be used in the work by the Engineer-in-charge in the field Laboratory.

All mix design and test data and results shall be maintained as part of the record of the contract and shall be signed by the Engineer-in-charge and the Contractor. A register showing such record shall be maintained at site of work as shown below.

STANDARD SPECIFICATION FOR STRUCTURAL WORKS

- Broadly, the work under this contract comprises of conveying of raw structural steel sections from BHEL - HPVP Store to site fabrication shop, fabrication of steel work at the site fabrication shop including one priming coat of Zinc Chromate/red oxide primer, transportation of fabricated steel structures to the erection site including loading, unloading, leading, stacking as required and all handling costs, erection of steel work over prepared foundations or on RCC brackets as the case may be and painting of steel work two coats with approved synthetic enamel ready mixed paint or as specified in the Bill of quantities carrying from BHEL - HPVP stores and erection of cloaking items etc. complete.
- If found necessary the tenderer may also be required to supply some raw structural steel sections also as required for this work in accordance with the latest editions of the Indian Standard Specifications noted below:-

IS 2062 & IS 1977. He will be required to submit the necessary test certificates for the materials so supplied for use on this work.

- The detailed fabrication drawings as approved for fabrication will be the responsibility of BHEL - HPVP. The Detailed Shop Drawings will be supplied by BHEL - HPVP to the contractor progressively to suit

the fabrication and erection sequence. The Contractor shall not depart from the drawings approved by BHEL - HPVP without the written permission of the Engineer-in-charge.

- Based on the detailed shop Drawings approved by the BHEL - HPVP the Contractor shall prepare at his cost, the Drawing Office Despatch Lists (abbreviated as D.O.D.L.'s) and get them approved by BHEL - HPVP. These shall contain the drawing number, the designation of items, number of pieces, based on the section weights as adopted for supply of raw materials without deduction for bolt holes and skew cuts. The DOD Lists shall form the basis for payment.

- Rate quoted against item(s) of the Bill of Quantities cover the fabrication of all items involved and shall therefore be an Overall-average-rate. The actual quantities for payment shall be based on the drawing office despatch lists to be prepared by the Contractor and got approved by BHEL - HPVP as aforesaid.

- All Civil works like preparation of foundations for columns, including embedding of holding down bolts etc., also have to be carried out and hence included in the present enquiry. All works shall be performed and completed in a thoroughly workmen like manner and the contractor shall follow the best modern practice in the manufacture of high grade structures not withstanding any omission in the specifications.

- (a) Fabrication shall generally be in accordance with IS 800 (latest issue) entitled "Code of practice for use of structural steel in general building constructions". Welding shall be in accordance with IS 816 entitled "Code of practice for use of metal arc welding for general construction in mild steel". The contractor shall provide necessary splicing as approved by the Engineer-in-charge, to suit the available lengths of raw steel, and no extra amount shall be paid on this account. Any specifications not covered by the Relevant Indian Standard Codes of practice shall be in accordance with the relevant BS or in its absence in accordance with the well established standard Engineering practice to be acceptable to BHEL - HPVP.

- (b) Under the contract, site fabrication is to be adopted for which a suitable site near and inside the factory premises will be made available by BHEL - HPVP at free of ground rent. The Contractor shall provide all plant and equipments, tools covered sheds and other facilities required for site fabrication work at his own cost.

- (c) The Contractor shall take into consideration the existing foundation structures and make necessary provisions in the fabricated components with the approval of the Engineer-in-charge so that proper alignment, vertically and easy connection / erection of structures is ensured, should this involve any extra work on the part of the contractor beyond his normal scope, the same will be paid for at mutually agreed rates.

- All fabricated steel work shall be given one coat of Red Oxide / Zinc Chromate primer conforming to Relevant IS code before erection. All fabricated steel work shall be match marked suitably to facilitate their erection in position without any difficulty.

- Materials to be supplied by this organization will be supplied in standard/random sizes/lengths as stocked by BHEL - HPVP. Hence the Contractor will be required to receive extra materials to cover conversion, wastage, alteration etc. He shall do so without any claim for extra payment, whatsoever on this account.

- All breakages after the A.C. materials are handed over to the contractor shall be to Contractor's account. As far as possible partially broken A.C. materials should be cut suitably and used for smaller sizes with the approval of BHEL - HPVP, without any extra claim. A breakage allowance of 3% of the

consumed quantity is permissible for A.C. materials, if size of sheets supplied vary with actual requirement the actual size as supplied shall be allowed, for material accounting.

- The Contractor should prepare in advance cutting lists for materials so as to obtain efficient and economical use of all types of materials including steel.
- Normally no night work will be permitted. But in case of emergency and urgent in nature where night work is warranted, the Contractor shall arrange for night works providing all facilities including illumination at his own cost, after obtaining written permission from Engineer-in-charge under intimation to Security and Safety Departments.
- The Contractor shall closely scrutinise all the drawings for the work issued by this organisation and bring to the notice of the Engineer-in-charge any discrepancies/ omissions noticed in the drawings before undertaking the actual work.
- M/s BHEL - HPVP through their duly authorised representative shall have all reasonable times access to the Contractor's premises or works and shall have the power at all reasonable times to inspect any portion of the work or examine the materials and workmanship of the structures during their manufacture and test. The Contractor shall give notice in writing to the inspecting Engineer of BHEL - HPVP when the materials to be supplied are ready for inspection and test, no materials shall be used on the fabrication work until the inspecting Engineer has certified in writing that such materials have been inspected and approved by him. The contractor shall provide at his own cost all facilities for the required tests on fabricated structures as required by the Engineer-in-charge. Defective fabrication structures shall be made good/replaced by the Contractor at his own cost to the full satisfaction of BHEL - HPVP. This also applies to loss or damage of raw materials, if special tests only will be borne by BHEL - HPVP.
- Weekly progress reports shall be submitted giving in detail the position of receipt of raw materials, progress of fabrication and completion of fabricated structures etc. The contractor shall submit at such times as may be requested by the Engineer-in-charge, schedules showing the programme and order in which the Contractor proposes to carryout the fabrication and erection works with dates and estimated completion times for various portions of the work. Such schedules shall be approved by the Engineer-in-charge prior to the starting of the relevant works.
- BHEL - HPVP would expect the contractor to take up simultaneously wherever possible both fabrication and erection of structures especially where a good deal of assembly work, which is in fact a continuation of the fabrication work, is required to be done at site. The painting and cloaking items of works, wherever possible, should be done simultaneously to save time. The Contractor may with the prior approval of BHEL - HPVP sublet the work. The main contractor shall however, be responsible for all works executed on his behalf by the sub-contractors.
- SETTING OUT AND ERECTING OF STEEL WORK:
 - Erection of steel work shall generally be in accordance with the provision of IS 800 (Code of practice for use of structural steel in General Constructions).
 - Site assembly of members on the ground by welding, bolting or otherwise as specified in shall be inspected thoroughly by the Engineer-in-charge, or his authorized representative and approved before erection.
 - All equipments, facilities and consumables for site fabrication as well as erection plant requirement, etc., such as derricks, cranes, lifting tackles, wire ropes, chain pulley blocks, jacks, winches etc. as necessary shall be arranged for by the Contractor at his own cost. Care shall be taken to see that all equipments, tools and tackles and wire ropes etc. in use are always in good

working conditions and fit for use. For all the tools and plants periodical calibration certificate from approved agency should be obtained. The above lists should be enclosed along with the tender.

- Frames shall be lifted at such points that they will not buckle or deform. Trusses shall be lifted only at nodes. Temporary bracing shall, if required, be provided at no extra cost, to relieve erection stresses.
- In the case of trusses and similar roof structures all or at least a majority of the purlins and wind bracings, shall be erected side by side with the erection of these structures. Columns shall be erected true to plumb, (no screed bars provided and fixed by the Contractor over the prepared pedestals), true to center line, level and gauge of traveling cranes. Alignment of the columns, crane girders and rails shall be done very carefully using high precision survey instruments and necessary adjustments made to suit actual requirements. A list of survey instruments proposed to be used shall be furnished in the tender.
- All damages to the steel work caused during the transit or otherwise shall be made good to full satisfaction of BHEL - HPVP at Contractor"s own cost, before erection.
- It shall be the sole responsibility of the Contractor to ensure accuracy of level, plumb, span and alignment of steel work before erection of other components.
- PAINTING AFTER ERECTION:
 - All steel work shall be given two coats of approved brands of first quality synthetic enamel ready mixed paint after erection (over the priming coat already provided). Painting shall be done as per IS 800. The shade, make, quality and other particulars of the paint proposed to be used, shall be subject to prior approval by BHEL - HPVP.
 - It is the responsibility of the Contractor to procure sufficient quantities of the approved paints well in advance to ensure their availability in time.
- TIME ALLOWED (Period of Contract)

The following programme should be strictly followed.

(i)	Fabrication of structural steel works Progressively from the date of award of to be completed } work	}	
(ii) from the date on completion of civil work and of site declared as fit for	Erection, painting of the above } structures, supply and erection of } cloaking items etc. to be completed }	}	Progressively which the readiness erection

20. The contractor will have to provide and fix the necessary screed bars etc. at his own cost in proper line, level and position to facilitate the erection work. Further, the contractor should lay and maintain necessary temporary approaches within his working areas at his own cost to facilitate his work and for easy movement of vehicles, cranes etc. deployed on the work. Only reasonable areas will be provided by BHEL - HPVP.

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21. Till the expiry of the maintenance period of SIX MONTHS after the completion of the entire contract work and handing over to BHEL - HPVP, the contractor should retain the minimum equipments and staff required and should carry out the maintenance works with the least possible interference to the routine works of the new shop. Till the expiry of the maintenance period the contractor shall be responsible for all damages occurring due to any fault on his part or on the part of his workmen, sub-contractor or other agencies engaged by him.

22. BHEL - HPVP shall have the right to take possession of or use any completed or partially completed part of the work. Such possession or use shall not be deemed to be acceptance of any work not in accordance with the contract.

23. The contractor shall observe all safety regulations and take necessary safety precautions as called for under the Factories Act or other relevant statute as applicable including the use of safety boots, safety belts, helmets and other equipments and accessories for ensuring safe execution of the contract and freedom from accidents.

24. The rates quoted in the Bill of Quantities of the tender for the fabrication item shall cover also the cost of preparation of DODL and similar incidental items. Fabrication works shall be undertaken only after the issue of approval of shop drawings.

25. The Contractor should co-operate with other contractors who may be executing their work in the same area in order to facilitate efficient execution of the entire project work in this area.

26. BHEL - HPVP is registered as an indenter for materials on rate contract with DGS & D. Tenderers who are on DGS & D List of rate contracts should mention their rate contract number and furnish a copy of the rate contract document with the tender.

27. The Guarantee / Warranty period for this contract shall be SIX MONTHS from the date of completion of the entire work and handing over to BHEL - HPVP. During this period the successful tenderer shall be at site on his own expense for replacement or repair of all defects arising out of faulty materials and/or workmanship.

28. Further particulars relating to design and fabrication and clarifications, if any, may be obtained on reference to the Sr. Dy. General Manager/Civil / Factory, BHEL - HPVP, Visakhapatnam or his nominee.

29. The contractor shall engage a level-II NDT Inspector for inspection of NDT works.

30. Inspection will be done by BHEL - HPVP Staff/Agencies appointed by BHEL - HPVP for the works covered in the tender.

31. Painting, DFT of primer should be 25 micron.

32. Finish coat Painting, DFT 20 micron for each coat. Paint shall be of first quality product of approved brand as per list of approved brands for materials enclosed in the price bid.

33. Pre heating and post heating required shall be as per AWS (latest).

34. Welded qualification is to be done before commencement of the work and approved & qualified welder only shall be engaged in work. Necessary testing charges shall be borne by the contractor.

35. For the supply of material the manufacturer's test certificate is to be produced.

Grouting :

Grouting of anchor bolts, holes, pockets and under base plate of structure has been broadly classified into two categories e.g. non-shrinkage grout and ordinary grout.

- Non-Shrinkage grout shall consist of 1 part of ordinary Portland cement : 1part of clean, dry well graded sand : 1 part of Ferro grout or similar approved additive as per manufacturer's specification. Non shrinkage grout shall be used for all structural frame supports or platforms having a height of more than 6 m and for all vertical columns, towers, vessels, reactors having equipment height more than 6 m for anchor base, all horizontal vessels, etc.
- The mortar mix for ordinary grout shall consist of one part of ordinary Portland cement, 2 parts of clean well-dried, well graded sand and mixed to minimum consistency required. Ordinary grout shall be used for grouting purposes in
 - All structural frames and platforms having height less than 6 m.
 - All horizontal vessels having diameter less than 1000 m.
 - All vertical columns, tower, vessel, reactor having less than 6 m from anchor base.
 - All pumps, horizontal or vertical, all heat exchangers.

GENERAL QUALITY CONTROL PROCEDURE FOR STRUCTURAL STEEL WORKS

The following quality standards are required to be maintained in all the structural steel fabrication components.

1. All the raw materials will be generally conform to IS 2062-1999 or equivalent.
2. The welding electrodes shall be kept in oven only.
- 3a. Submerged Arc welding has to be done for crane girder flange to web joints and built up column as per the details given in the approved drawings.
- 3b. E7018 Welding electrode rods shall be used where the thickness of plates are 20mm and more and as specified in the drawings issued.
- 3c. All the other weld in crane girder and butt welds in columns and beams shall be done with E 7018 welding electrodes.
- 3d. All the welds in Nodal points of trusses and lattice girders shall be done with E 7018 welding electrodes.
4. Pre heating shall be done for plates having thickness 25mm & more and the temperature shall be maintained by checking with thermal chalk, as per quality standards.
5. All erection welding, of any component shall be done using E 7018 Welding Electrode.
6. 100% visual check shall be carried out for raw materials and welding on all components and the welding areas during inspection, to be tested for LPI / MPI / UT / Radiography / PWHT as provided in the Quality Control Procedure.
7. Base plate to column shall be perfectly checked for perpendicularity.
8. All the components shall be checked for dimension at fit-up stage itself before the commencement of welding operation.

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9. Contractor shall buy & use Black Hex. Bolts and nuts as per IS Specifications as detailed below for fabrication & erection of steel structures.

Black Hex Bolts	IS 1363 - 1984 Part – I (Class 5.6/5.8)
Black Hex Nuts	IS 1363 - 1984 Part - III
Plain MS washer	IS 2016 - 1975
Taper washer for beams	IS 5274 - 1975
Taper washer for channel	IS 5372 - 1975
Spring washer	IS 3063 - 1964

10. Contractor shall buy & use the following welding consumables as detailed below:

• SMAW		
Sl. No.	Electrodes	Manufacturer
•	E 6013 & E 7018	D & H Secheron
•	E 6013 & E 7018	ESAB India Ltd.
•	E 6013 & E 7018	Modi Arc Electrode Co.
•	E 6013 & E 7018	D & H Welding Electrode (I) Ltd.
•	E 6013 & E 7018	Mantek Electrods (P) Ltd.
•	E 6013 & E 7018	Ador Welding Ltd.
•	E 6013 & E 7018	Varun Electrodes Pvt. Ltd.
• SAW Wire		
Sl. No.	Brand	Manufacturer
	• AUTO melt Grade A	Ador Welding
	• Mantek Grade A	Mantek Wires
	• Metaspool S1 dia. 4mm	Precision Wires
	• OK Aut Rod 12.08 L	ESAB India Ltd.
• Flux		
Sl. No.	Brand	Manufacturer
	• Super S41	Super Elec Inds
	• Mantek 22	Mantek Welded Flux
	• RMH Auto Weld Grade 1	RMH Chemicals
	• SWP 40 T	Super Weld Prod
• GMAW (Co2)		
Electrode	Brand	Manufacturer
ER70S-6 Co2 WIRE	Automig-1	Ador Welding Ltd.
ER70S-6 Co2 WIRE	Esab MW1	Esab India Ltd., Chennai
ER70S-6 Co2 WIRE	Mantek Mig	Mantek Wiress
ER70S-6 Co2 WIRE	Nouvarc	Nouveax Industries (P) Ltd., Kangayam
ER70S-6 Co2 WIRE	Autofil-6	Voltrac Electrode Pvt. Ltd., Tirupathi.
ER70S-6 Co2 WIRE	Prima Mig/Mag	Varun Electrodes Pvt. Ltd., Panipat.

11. Rolled steel sections of depth greater than 450mm need to be visually checked for lamination before the process of fabrication. The doubtful area to be tested for LPI and if lamination is found UT Test to be carried-out.

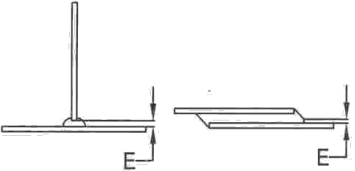
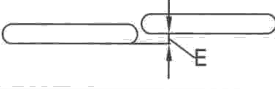
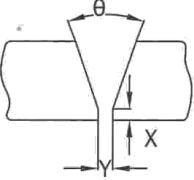
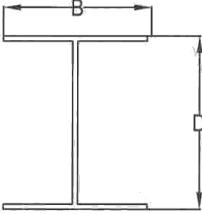
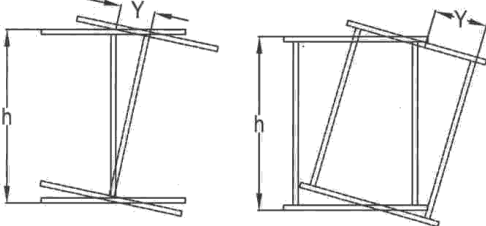
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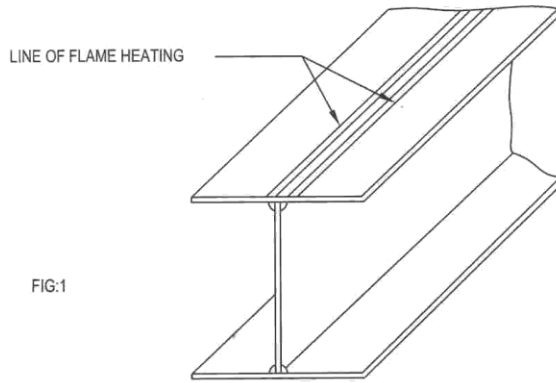
Date : 07.05.2016

12. The welding code of practice, procedures, specifications for electrodes / consumables etc., for manual welding and auto welding shall conform to AWS D1.1/D1.1M:2006 (Latest) and as per the QCP issued by BHEL - HPVP component-wise.

13. All the fabrication and erection works shall have to be executed as per the QCP issued by BHEL - HPVP.

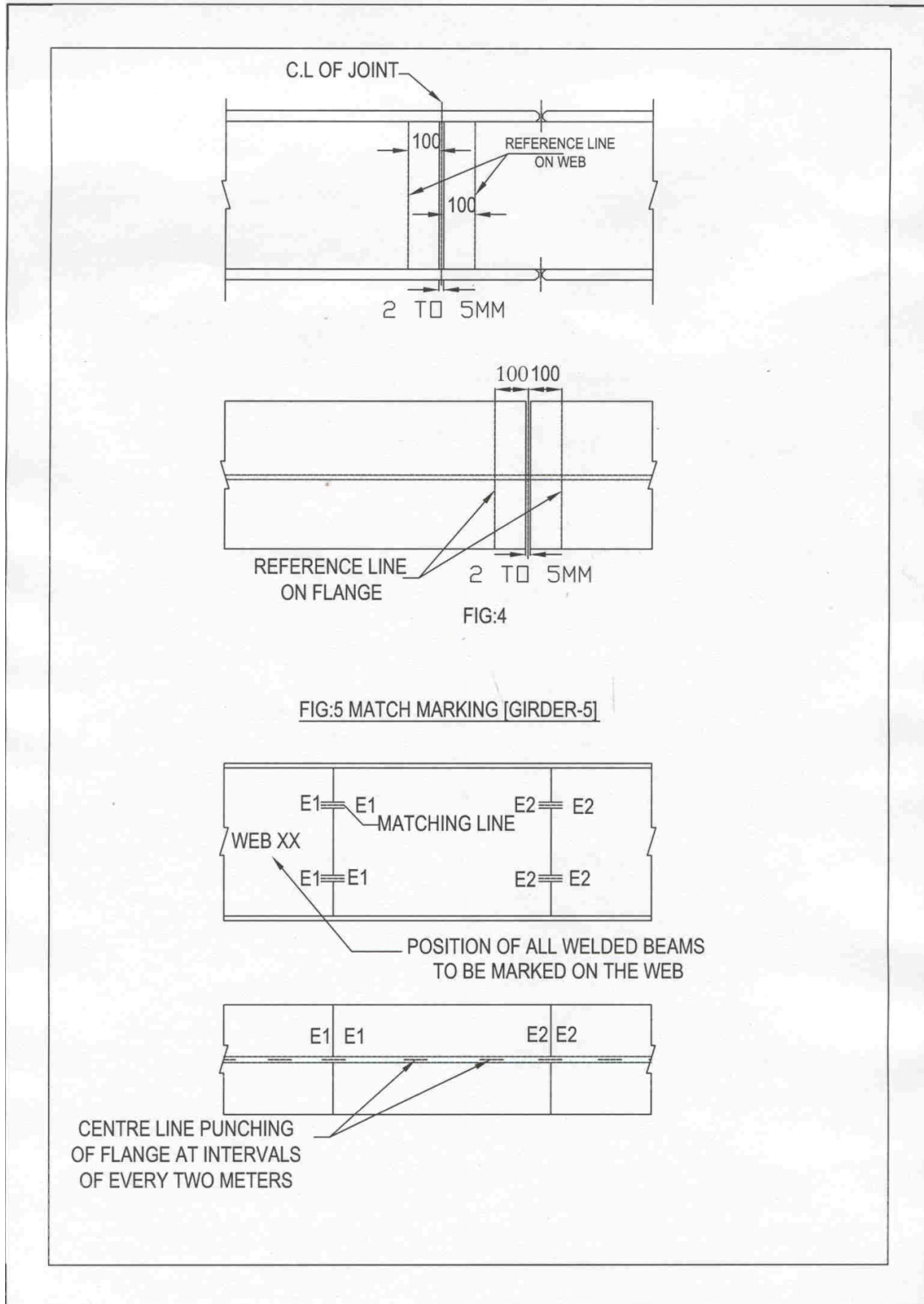
14. All the fabrication and erection works will be inspected for Quality Control by a third party inspection agency as fixed by BHEL - HPVP.

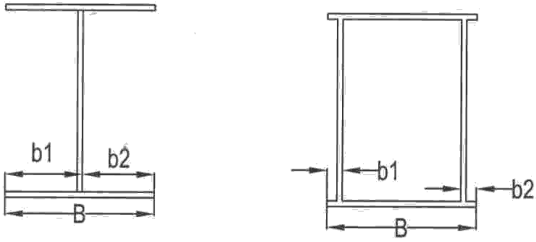
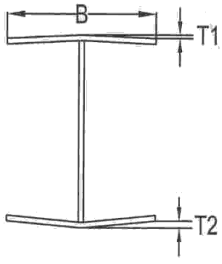
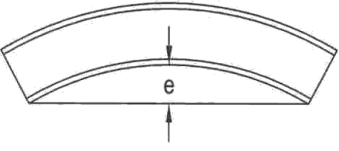
DESIGNATION	DETAIL OF SKETCH	PERMISSIBLE DEVIATION
FILLET WELD FIT UP	FIG:2 	MAX.LOCALISED GAP =1.5mm
BUTT WELD	FIG:3 	CUT OF ALIGNMENT = 3 mm MAX
FIT UP	FIG:4 	FOR ,X,Y, θ REFER =1.2 &3 OF CL 7:4:3
SECTION SIZE	FIG:5 	D: UPTO 1M : ± 3 mm 1M TO 2M : ± 4.5 mm OVER 2M : + 7.5 mm - 4.5mm B: ± 3 mm
TWIST ON SECTION (Y)		$Y=0.005h$ 10 mm MAX

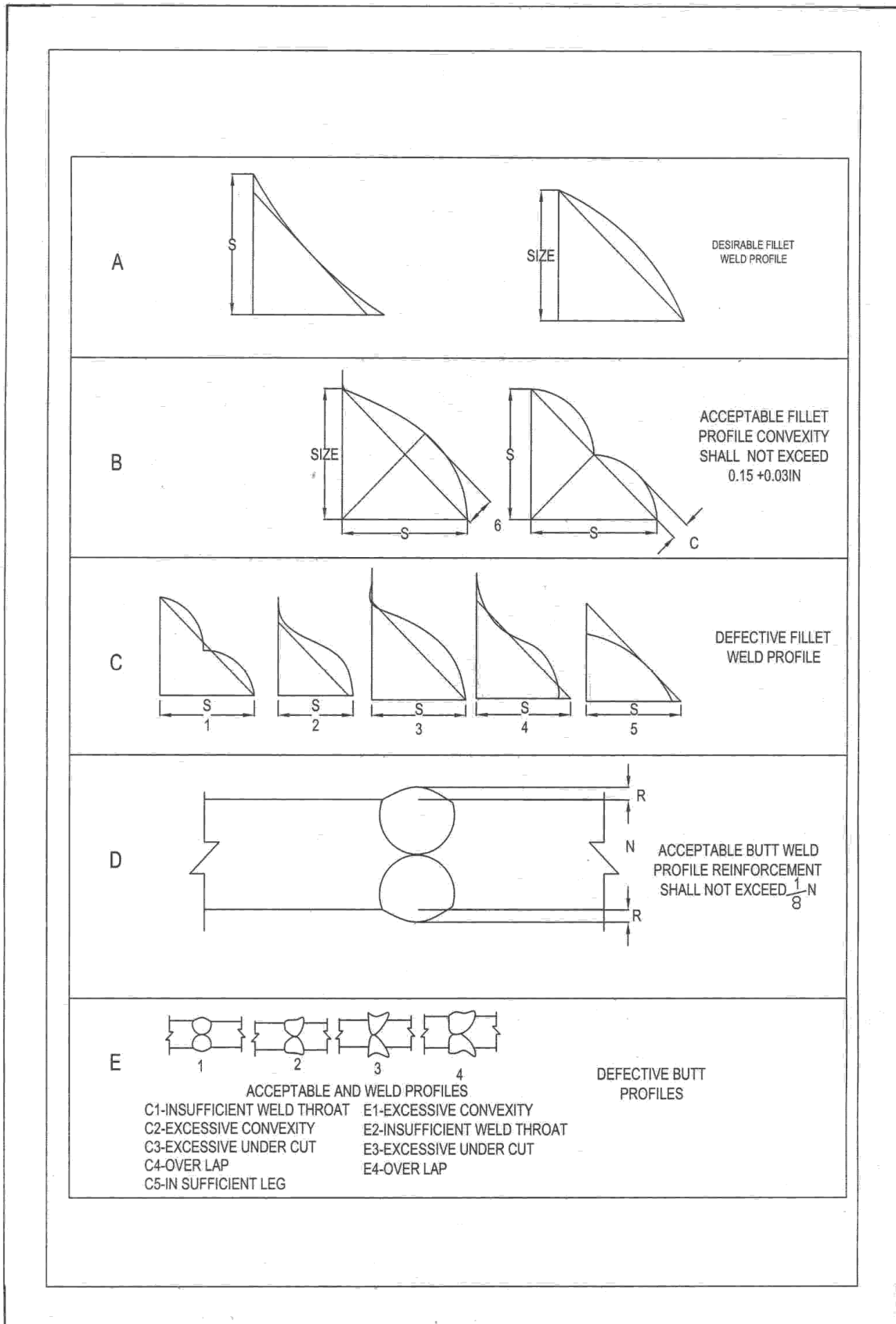


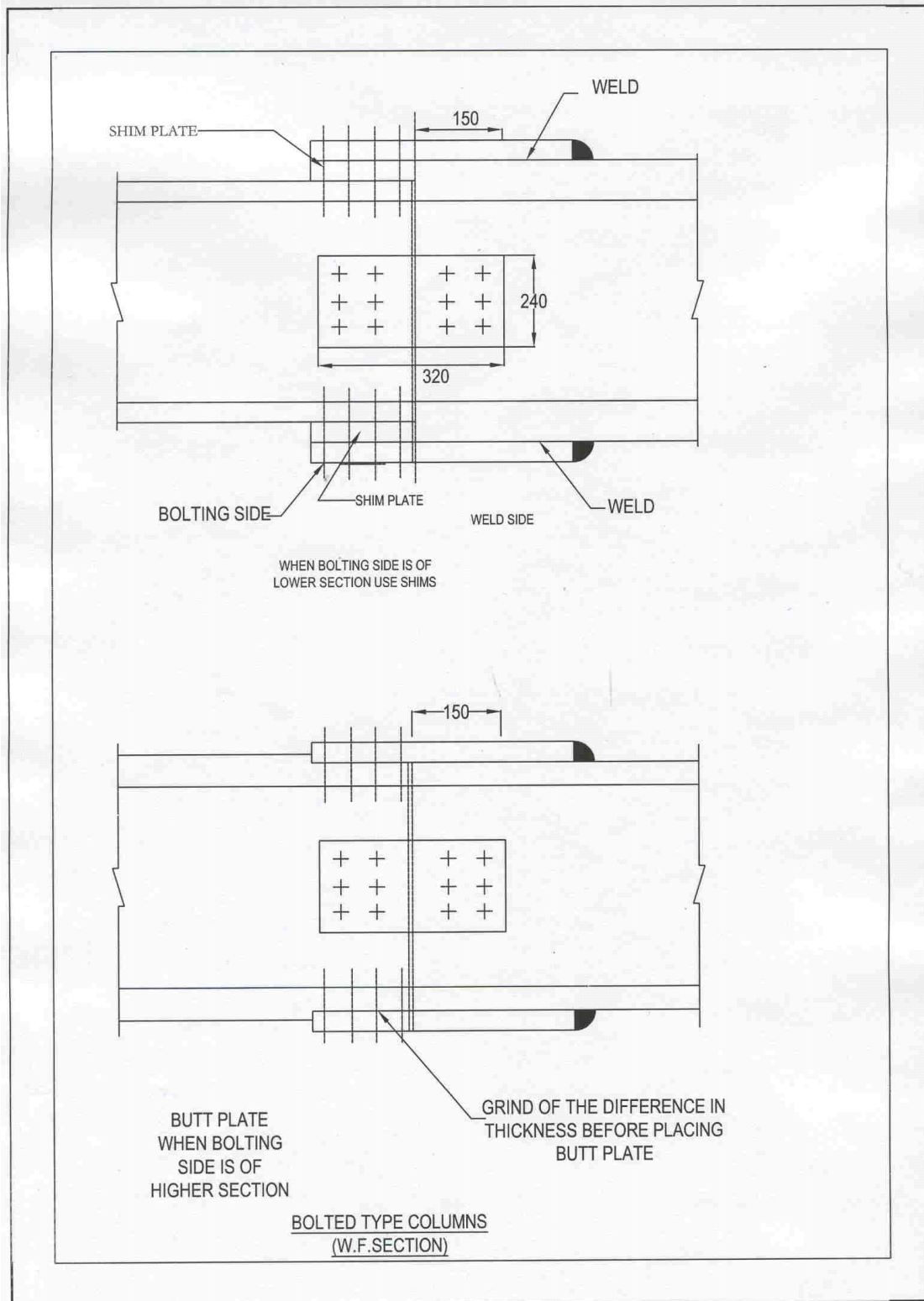
CORRECTION OF FLANGE WARPAGE

DESIGNATION	DETAIL OF SKETCH	PERMISSIBLE DEVIATION
WEB SHIFT	<p>A 2D cross-section sketch of a beam. The top flange width is labeled 'B'. The web is centered. The bottom flange is shifted to the left, with the distance from the web centerline to the left edge labeled 'b1' and to the right edge labeled 'b2'. The label 'FIG:2' is to the left of the sketch.</p>	$\frac{b1 - b2}{2} = 2\text{mm}$
FLANGE WARPAGE	<p>A 2D cross-section sketch of a beam. The top flange width is labeled 'B'. The top flange is curved upwards, with the maximum upward deviation labeled 'T1'. The bottom flange is curved downwards, with the maximum downward deviation labeled 'T2'. The label 'FIG:3' is to the left of the sketch.</p>	$T1+T2 = \frac{B}{100} \text{ OR } 6\text{MM}$



DESIGNATION	DETAIL OF SKETCH	PERMISSIBLE DEVIATION
<p>WEB SHIFT</p>	<p>FIGURE-7</p> 	$\frac{b1 - b2}{2} = 2\text{mm MAX}$
<p>FLANGE WARPAGE</p>	<p>FIGURE-8</p> 	$T1+T2 = \frac{B}{100} \text{ OR } 6\text{MM}$
<p>CAMBER</p>	<p>FIGURE-9</p> 	<p>$E = 1/1000 \times \text{length}$ SUBJECT TO MAX] OF 10mm.</p>





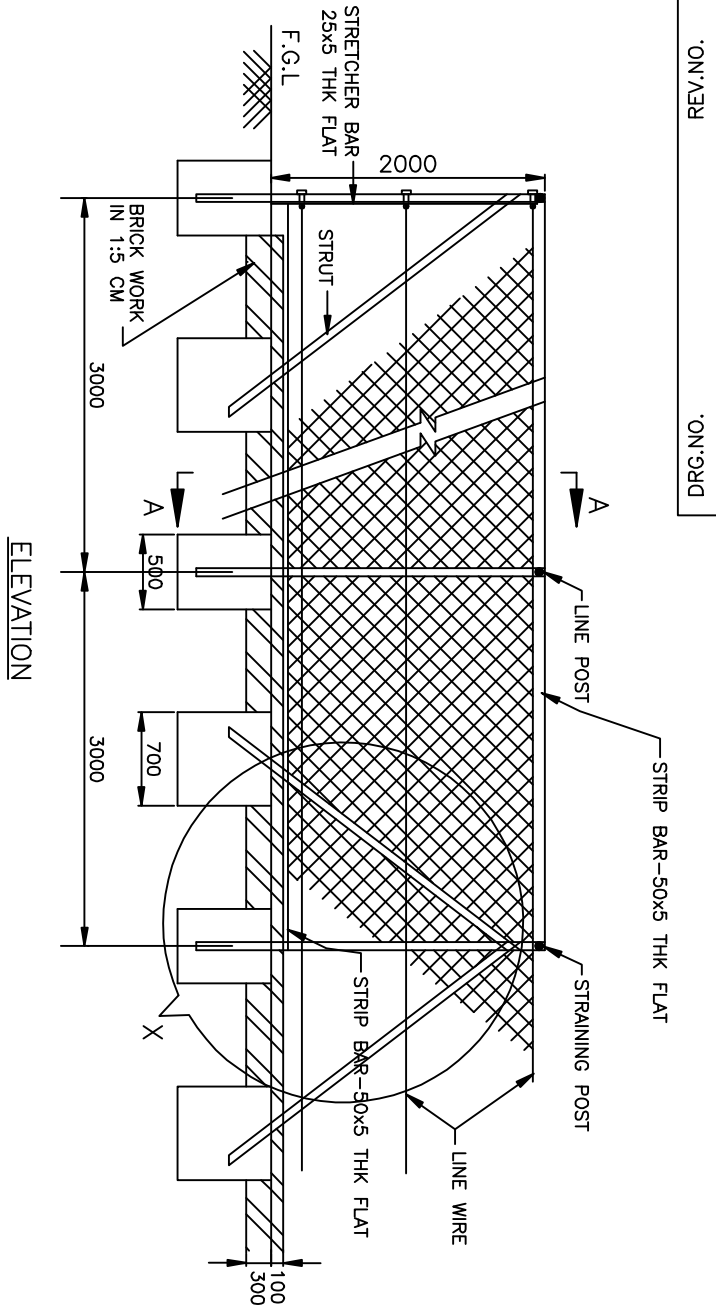
LIST OF SAFETY CODES FOR CIVIL WORKS PUBLISHED BY BUREAU OF INDIAN STANDARDS

Sl. No.	Code No.	Title
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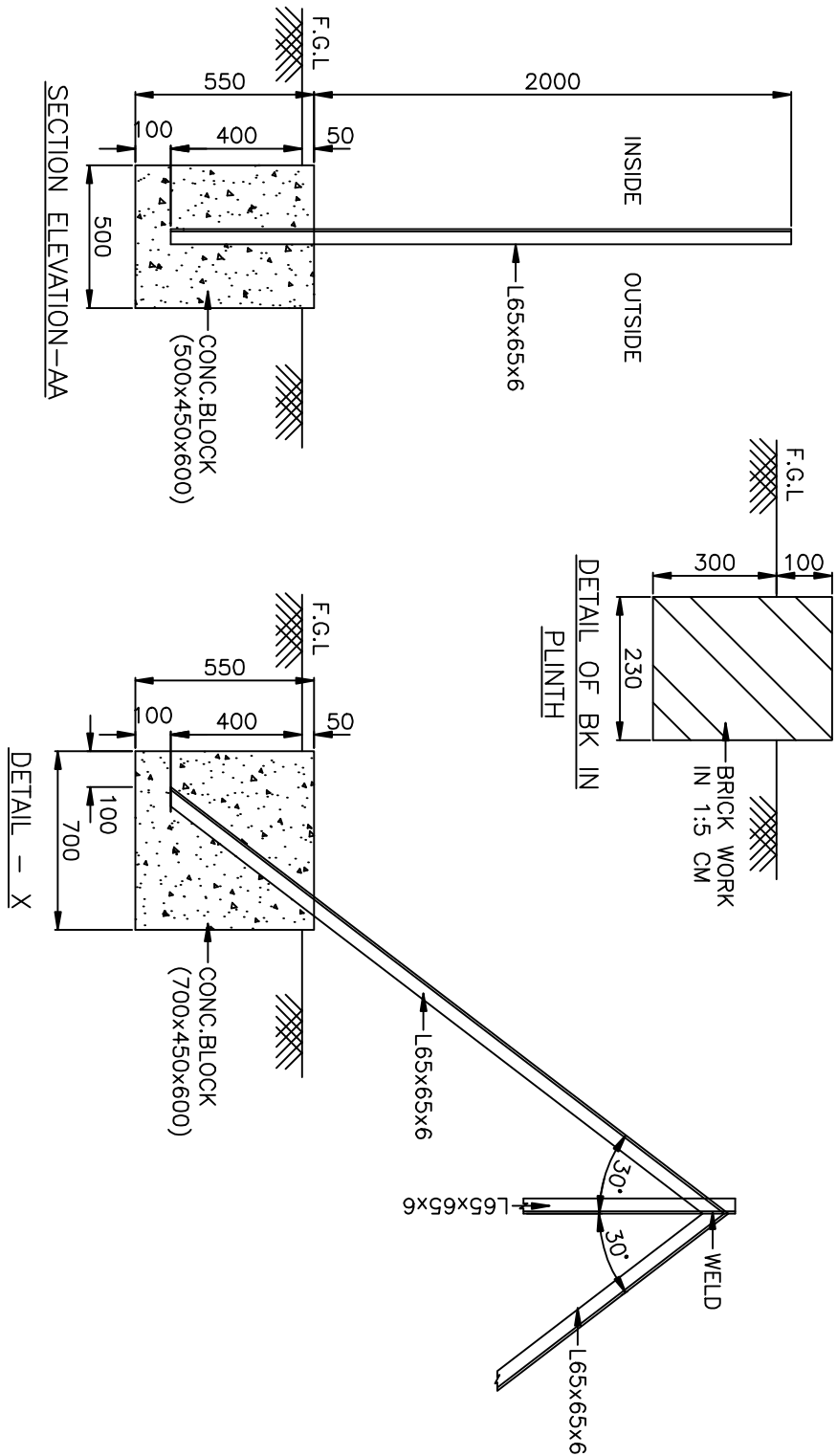
01	IS : 818	Code of Practice for Safety and Health Requirements in Electric and Gas Welding and Cutting Operations – First Revision
02	IS : 875	Code of practice for Structural safety of buildings: Masonry walls
03	IS : 933	Specification for Portable Chemical Fire Extinguisher, Foam Type – Second Revision.
04	IS :1179	Specification for Equipment for Eye and Face Protection during Welding – First Revision.
05	IS : 1904	Code of practice for Structural safety of buildings: Shallow foundations
06	IS : 1905	Code of practice for Structural safety of buildings: Masonry walls
07	IS : 2171	Specification for Portable Fire Extinguishers, Dry Powder Type – Second Revision.
08	IS : 2361	Specification for Building Grips – First Revision.
09	IS : 2750	Specification for Steel Scaffoldings.
10	IS : 2925	Specification for Industrial Safety Helmets – First Revision
11	IS : 3016	Code of Practice for Fires Precautions in Welding and Cutting Operations – First Revision
12	IS : 3521	Industrial safety belts and harnesses
13	IS : 3696	Safety Code for Scaffolds and Ladders : Part I – Scaffolds.
14	IS : 3696	Safety Code for Scaffolds and Ladders : Part II – Ladders.
15	IS : 3764	Safety Code for Excavation Work
16	IS : 4014	Part I & II Code of practice for Steel tubular scaffolding
17	IS : 4081	Safety Code for Blasting and Related Drilling Operations.
18	IS : 4082	Recommendations on staking and storage of construction materials at site

Sl. No.	Code No.	Title
19	IS : 4130	Safety Code for Demolition of Buildings – First Revision.

20	IS : 4138	Safety Code Working in Compressed Air-First Revision
21	IS : 4912	Safety requirements for Floor and Wall Openings, Railings and toe Boards –First Revision.
22	IS : 5121	Safety Code for Piling and other Deep Foundations.
23	IS : 5916	Safety Code for Construction involving use of Hot Bituminous Materials.
24	IS : 5983	Specification for Eye Protectors – First Revision.
25	IS : 6922	Structures subject to underground blasts, criteria for safety and design
26	IS : 7205	Safety Code for Erection on Structural Steel Works.
27	IS : 7069	Safety Code for Handling and Storage of Building Materials.
28	IS :7293	Safety Code for Working with Construction Machinery.
29	IS : 7969	Safety code for handling and storage of building material
30	IS : 8758	Recommendation for Fire Precautionary Measures in construction of Temporary Structures and Pandals.
31	IS : 8989	Safety Code for Erection of Concrete Framed Structures
32	IS : 9759	Guidelines for de-watering during construction
33	IS : 11057	Code of practice for Industrial safety nets
34	IS : 13415	Code of Practice on safety for Protective barriers in and around building
35	IS : 13416	Recommendations for preventive measures against hazards at working places



ELEVATION



SECTION ELEVATION-AA

DETAIL - X

DRAWING NOT TO BE SCALED

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. LINE POST SHALL BE PLACED AT 3.0 M C/C.
3. STRUT SHALL BE PROVIDED AT EVERY 15 TH. POST LAST BUT ONE END POST & CORNER POST ON BOTH SIDE & END POST ON ONE SIDE ONLY.
4. STRAINING BOLTS SHALL BE PROVIDED AT THE END POST & AT PLACES AS DIRECTED BY ENGINEER INCHARGE.
5. SIZE OF STRAINING POST SHALL BE SAME AS THAT OF LINE POST.
6. THE CHAIN LINK FABRIC SHALL CONFIRM TO IS:2721.
7. EXPOSED FOUNDATION BLOCK AT GROUND LEVEL SHALL BE FINISHED SMOOTH IN CEMENT MORTAR 1:6.
8. GALVANISED CHAIN LINK FENCING SHALL BE TIED TO THE ANGLE IRON POST EITHER WITH WELDED M.S NIBS OR WITH G.I WIRE THROUGH HOLES IN THE POST.

REF. DRG.NO:
COMP. FILE NAME : CHAIN LINK FENCING

REF.DRG.No.	GENERAL NOTES: 1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED. 2. WELDING SYMBOLS ARE TO IS 813. 3. SURFACE FINISH SYMBOLS ARE TO IS 3073-1997. 4. DO NOT SCALE THE DRG.		BHARAT HEAVY ELECTRICALS LTD. HEAVY PLATE & VESSELS PLANT VISAKHAPATNAM-530 012 (A.P)	
	DGN.	V.N.RAO	DETAIL OF CHAIN LINK FENCING WORK ORDER NO. _____ NO.OFF _____ YEAR OF ORDER SIZE _____ DRAWING NO. _____ 2016 A3 MOD-2016-SK-02	
DRN.	5.2.2016			
CHD.				
ALL PROJECTIONS ARE FIRST ANGLE UNLESS OTHERWISE SPECIFIED.		Approved	SCALE	REV.
				0

Ref: OPS/OS/WC/2016-17/39/008

Date : 07.05.2016

**MINIMUM WAGES AS PER CENTRAL LABOUR DEPARTMENT
w.e.f 01.04.2016**

All values are in ₹

SL. No	DESCRIPTION	Unskilled	Semi Skilled	Skilled
1	Minimum Wage	307.00	347.00	407.00
2	PF @ 13.6%	41.78	47.22	55.39
3	ESI @ 4.75%	14.58	16.48	19.33
4	Bonus @ 8.33%	25.57	28.90	33.90
5	Leave Wages (18 days / Year)	17.71	20.01	23.48
6	Terminal Benefit for (15 days / year)	15.75	16.68	19.56
7	Holidays for 10 days	9.83	11.12	13.04
	TOTAL	432.22	487.41	571.70

SIGNATURE OF THE BIDDER WITH STAMP

GENERAL TERMS AND CONDITIONS OF RA (REVERSE AUCTION)

BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid “ by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.”

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid“ by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

GENERAL TERMS AND CONDITIONS OF RA (REVERSE AUCTION)

:: 2 ::

10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction“, which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines*, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder(s) (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

*** * ***

Ref: OPS/OS/WC/2016-17/39/008

Date : 07.05.2016

Sub : Auxiliary works of modernization Civil Works related to equipment foundations, rail track, gas manifold etc.

ACCEPTANCE TO TENDER TERMS & CONDITIONS

I / We hereby confirm that the Tender documents, all annexures etc. have been studied in detail and we have fully understood the scope of work.

I / We accept to all the Terms and Conditions of the Tender Enquiry and the prices quoted are in accordance with the same.

I / We accept to offer valid for a period of **3 months** from the last date for tender submission.

I / We give our acceptance to participate in Reverse Auction in case BHEL decides to go for reverse auction for this tender.

Tender documents duly signed on all the pages by the Owner / authorized representative of the bidder are attached herewith.

SIGNATURE OF THE BIDDER WITH STAMP

CONTRACTOR INFORMATION

Sl.No.	Particulars	To be Filled by Bidder
01.	Name of the Contractor	
02.	Nature of Firm / Concern (Proprietor/Partnership/Pvt. Limited/Public Ltd.) Note: In case of partnership concern, please enclose photo copies of the partnership deed	
03.	Full address	
04.	Name of the Proprietor/Partner	
05.	Name of the Person(s) and designation authorized for signing the contract/dealing with BHEL	
06.	Telephone No. of the firm	
07.	Fax No.	
08.	Mobile No.	
09.	E-mail ID	
09.	Organizational structure with name and designation	

CHECK LIST

Sl. No.	Particulars	Document Enclosed (Yes / No)	Document No
01.	Name of the Contractor		
02.	Tender Document Signed & Stamped		
03.	Tender Cost @ ₹ 229/-		
04.	Earnest Money Deposit (EMD) @ ₹ 1,50,000/-		
05.	PF Registration Certificate		
06.	ESI Registration Certificate		
07.	Service Tax Registration Certificate		
08.	PAN Number		
09.	Income Tax Returns for last 3 years (FY 2012-13, 2013-14 & 2014-15)		
10.	Profit & Loss account and Balance Sheet certified by the Practicing Chartered Accountant for the last 3 years		
11.	Work orders & Job Completion Certificates in similar works as mentioned in eligibility criteria.		
12.	Latest solvency certificate (within One year) from the Banker		
13.	MSE Registration Documents, if applicable EM II certificate having deemed validity (5 years from date of issue of acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed at annexure-A where deemed validity of EM II certificate of five years has expired)		

Certificate by Chartered Accountant on letter head

This is to certify that M/S
 (hereinafter referred to as 'company') having its registered office at
 is registered under MSMED Act 2006,
 (Entrepreneur Memorandum No (part-II)dated
, Category: (Micro/small). (Copy enclosed).

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

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of small scale industries vide its notification No.S.O.1722(E) dated October 5, 2006:
 ₹.....Lakhs

2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and Furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
 ₹.....Lakhs

(Strike off whichever is not applicable)

The above investment of ₹.....Lakhs is within permissible limit of ₹.....Lakhs forMicro/ Small (strike off which is not applicable) Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is (dd/mm/yyyy) Which is within the period of 3 year from the date of graduation of such enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership number –

Seal of Charatered Accountant

(Required only if it was not submitted earlier)
ACCEPTANCE FOR ELECTRONIC FUND TRANSFER / RTGS / NEFT TRANSFER

01	NAME & ADDRESS OF THE SUPPLIER / SUBCONTRACTOR	
02	VENDOR CODE ASSIGNED BY BHEL, HPVP LTD	

DETAILS OF BANK ACCOUNT

03	NAME & ADDRESS OF THE BANK	
04	NAME OF THE BRANCH	
05	BRANCH CODE	
06	MICR CODE	
07	ACCOUNT NUMBER	
08	TYPE OF ACCOUNT	
09	BENEFICIARY'S NAME	
10	IFSC CODE OF THE BRANCH	
11	EMAIL ID	
12	TELEPHONE / MOBILE NUMBER	

CERTIFICATE

I / We here by agree to receive the payments due from M/s Bharat Heavy Electricals Ltd., by the National Electronic Fund Transfer / or RTGS Transfer mode by credit to my / our above mentioned Bank account. I / We also agree that payments made to the above mentioned account are a valid discharge of the liability of M/s Bharat Heavy Electricals Ltd. I / We also agree to bear the applicable Bank charges for the above mode of transfer. A copy of the cheque leaf/ cancelled cheque leaf of the above account is sent herewith.

(Authorized Signatories with name & seal)

BANKER'S CERTIFICATION

We confirm that we are enabled for receiving RTGS and NEFT credits and we further confirm that the account number of _____ (name of account holder), the signature of authorized signatory and the MICR and IFSC codes of our branch mentioned above are correct.

Place:

Bank Manager / Officer

Date:

Signature with Bank stamp
and name seal

FORWARDED TO ACCOUNTS DEPARTMENT / CASH SECTION

We confirm the above details are verified with the records available with us

Signature of BHEL Official with name & seal
Operating the contract / Services

PART – II

(PRICE BID)

BHARAT HEAVY ELECTRICALS LIMITED
HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM – 530 012

NAME OF WORK: Auxiliary works of modernization Civil Works related to equipment foundations, rail track, gas manifold etc.

Tender Enquiry No : OPS/OS/WC/2016-17/39/008, **Date :** 07.05.2016

NOTE:

- 1) **Tenderers are requested to visit the site before submitting their tenders and go through the site conditions, nature and quantum of the job to be done and in general shall themselves obtain all necessary information as to risks, safety precautions, contingencies and other circumstances. A tenderer shall be deemed to have full knowledge of the site, whether he inspects it or not, no claim shall be allowed.**
- 2) Contractor shall pay the minimum wages to the contract labour as notified by Central Government from time to time. The Minimum wages should be as follows as per the Central Government G.O. enclosed for your reference in Technical bid Annexure-V. However contractor has to pay as per recent G.O. in force from time to time and no extra claim can be entertained on this score.

In addition to the above the contractor has to comply with all the statutory requirement such as PF, ESI, Bonus, Leave wages, Retrenchment compensation etc.
- 3) **The quoted rate shall be firm throughout the contract period. No cost escalation will be paid on any account throughout the contract period for any item.**
- 4) The item rate offered shall provide for the complete cost towards labour, consumables, tools, plant & machinery, transport, supervision, overheads, profits & all other incidentals etc., complete. **The rate quoted shall not include service tax. However the service tax as applicable for this contract work shall be paid by contractor and same shall be reimbursed by BHEL on submission of proof payment.**
- 5) Once in a month, bill shall be prepared for the actual quantum of work done and submitted to the Civil Department for further process for arranging payment.
- 6) **L1 shall be evaluated based on quoted total price.**
- 7) The quantity indicated below is approximate and may vary on both sides subjected to the requirement. However payment shall be made for the actual quantity only.

SIGNATURE OF THE TENDERER WITH SEAL

Schedule of Quantities & Rates (SOQR)

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
1	Dismantling / removing / demolishing as the case may be of the following by manually/ mechanical means and carefully stacking the serviceable materials at site of work or conveying and handing over the same at BHEL HPVP stores and disposal of unserviceable materials by transporting and dumping in the nearby low level areas within factory premises. All as per instructions of Engineer-in-charge.					
a	RCC works including stacking of steel bars.	Cu.m	40			
b	Steel structures/steel works in builtup sections including bolts, nuts, cutting rivets, welding dismembering etc.	MT	3			
2	Earthwork in excavation in soils given below by mechanical means (Hydraulic excavator) /manual means and depositing the excavated earth at suitable places within the factory premises and initial lift of 2.0 meter for foundation in building works, roads, narrow drains, sewers, bridges, pipe lines etc., sectioning the sub grade to proper level and grade, watering and consolidating the sub grade to receive concrete bed, all as per standard specifications and instructions of Engineer-in-charge. Rate also includes bailing or pumping out water during excavation due to subsoil water, rain etc., if any					
a	All kinds of soils except rock	Cu.m	80			

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
3	Supply and filling with crusher dust in foundation, plinth, under floor etc. including watering, ramming, consolidating and dressing complete.	Cu.m	5			
4	Earth work in filling in specified grade with selected excavated earth (by Engineer in charge), in layers not exceeding 300mm thk. In loose depth, watering, compacting to achieve 90% of maximum dry density, dressing the top etc. complete as directed by Engineer in charge.	Cu.m	100			
5	Providing and laying in position plain cement concrete of specified grade including consolidation, curing etc complete all as per standard specifications. Rate excludes cost of centering and shuttering.					
a	1:4:8 graded stone aggregate 20 mm nominal size	Cu.m	5			
6	Centering and shuttering including strutting, propping, assembling etc. and removal of form work for following works.					
a	Foundations, footings, bases of columns, equipment foundations, columns, plinth beam, precast slabs, kerbs etc. for concrete.	Sq.m	85			
7	Straightening, cutting, bending, placing in position of MS/CTD bars and binding with MS binding wires of 18/20 gauge etc. for reinforcement of RCC works. Rate includes cover blocks, cost of binding wire, conveyance of MS/ CTD bars from BHEL HPVP stores to site of work, labour etc. complete. MS/CTD bars will be supplied by BHEL HPVP at Stores free of cost.	MT	1.6			

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
8	Providing and laying in position machine batched, machine mixed and machine vibrated design mix of reinforced cement concrete of specified grade for structural elements using 10 to 20 mm hard broken granite stone jelly, excluding cost of centering, shuttering, finishing and reinforcement but including admixtures in recommended proportions (as per IS:9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability, all as per directions of Engineer-in-charge. M-30 Grade reinforced cement concrete. All work in foundation, basement and super structure.	Cu.m	28			
9	Same as above, but with M-20 grade reinforced cement concrete	Cu.m	70			
10	Brick work in Cement Mortar 1:5 with FPS (second class ground moulded chamber bricks) of class designation 50 in foundation and superstructure.	Cu.m	30			
11	Plastering with Cement Mortar 1:5 of 15 mm average thickness as per standard specifications, over all brick works inside/ outside, concrete surfaces, at all levels including curing etc.	Sq.m	175			
12	Painting with oil bound washable distemper of approved brand and shade on surfaces including cost of material, cleaning, brushing, preparing the wall surfaces even and emery papered smooth in accordance with standard specifications, both interior and exterior walls.					
a	Three coats (A priming coat with approved primer and two coats of distemping).	Sq.m	175			

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
13	Painting (including priming coat) on structural steel works in roof structures, fencing, gates, columns etc.with synthetic enamel paint of approved brand and shade/ Aluminium paint, brushing to give an even shade including cleaning the surfaces of all dirt, dust and other foreign matters, scaffolding charges etc.complete. All as per standard specifications to get even shade.					
a	Two or more coats to get even shade apart from the primer coat.	MT	8			
14	Flooring with reinforced cement concrete of mix 1:2:4 using 20 mm nominal size hard broken granite stone jelly for thickness of 150 mm laid in panels not exceeding 3 x 3 m between joints, including necessary vibration using needle / board / screed vibrators, all as required including necessary shuttering, painting the sides with bitumen, but excluding fabrication charges for reinforcement, all as per standard specifications.	Sq.m	400			
15	Collection from BHEL HPVP stores and transporting / carting the raw structural steel sections to the contractor's site / fabrication shop, fabrication of columns, trusses, purlins, runners, hand rails, Gates etc., and forming an integral part of the steel work together with all shop welding including using low hydrogen electrode wherever necessary, all as per drawings and standard specifications. Rate includes delivery of fabricated steel work at erection site ready for erection, all charges for packing (wherever called for) handling, conveying, stacking and all other incidental charges both for raw materials and fabricated steel works. Rate excludes raw structural steel sections which will be supplied by BHEL HPVP at its stores at free of cost. Rate shall include cost of providing one shop coat of red oxide primer to relevant IS specification over structural steel works, including preparing the surfaces by thoroughly cleaning oil, grease, dirt and other foreign matters and scoured with wire brushes, fine steel wool scrapers and sand paper, all as per standard specifications.	MT	8			

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
16	Carrying from stacks to erection site and erection of fabricated steel work including all handling, conveying, assembling, hoisting, erecting in position, site welding and or bolting, alignment of structures, all as per drawings and standard specifications. Rate includes cost of bolts & nuts of approved brand and quality, hire charges for cranes, lifting tackles, welding tools and plants, labour etc., but excluding cost of fabricated components. Weight of fasteners will not be accounted for payment	MT	8			
17	Providing and laying 50 Thk. Heavy duty flooring in panels in two layers, bottom layer 35 mm Thk. In 1:1.5:3 nominal mix concrete (1 cement: 1.5 coarse sand: 3 stone aggregate of 10 mm to 6 mm size) by volume, finished rough and 15 mm top smooth finishing layer of cement hardener and stone aggregate mix, one part of approved quality hardener and four parts of cement by weight shall be mixed dry and this dry mixture shall be mixed with stone grit of 6 mm and down size in the ratio of 1 harder and cement mixture : 2 stone grit by volume; including finishing, shuttering the edges, curing, tools, tackles etc all complete for all heights for fixing on new works & existing shop floor in panels.	Sq.m	65			
18	Providing and fixing 600 x 450 x 5 mm beveled edge mirror of superior glass (approved brand) mounted on 5/6 mm thick hard board / ply wood / plastic folder sheet, fixed to wooden cleats with C.P brass screws and washers, etc. complete.	Each	15			
19	Collection from BHEL HPVP stores and transporting/carting to fabrication yard, Fabrication and fixing in position of M.S inserts out of M.S plates, flats, rounds, angles etc., including necessary lugs made of rounds or flats, sizing and cutting to required lengths, bolting and welding as required and placing the same in position in both plain and reinforced cement concrete members, including adjusting the shuttering if necessary, tying and holding to correct level and line. Rate includes cost of all materials, labour etc., complete but excluding raw steel sections which will be supplied by BHEL HPVP at Stores at free of cost.	MT	2.5			

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
20	Providing and fixing holding down bolts of required sizes with nuts, washers etc. and fixing in proper level, line, alignment etc., all as per drawings and instructions of Engineer-in-charge. Rate includes cost of steel materials, bolts, nuts, washers, fabrication and machining charges, fixing, all labour etc. complete. in all sizes & lengths.	Kgs.	50			
21	Supply and fixing GI chain link having 4" x 4" opening - 12 gauge for fencing including unwinding the roll and fixing in proper position, with proper tension and alignment by means of MS flat of size 50 x 6 as stiffeners, drilled with necessary holes and fitted with MS fencing post by 1.5" x 3/8 " bolt and nuts with necessary washer etc complete . Payment will be made based on fenced area. Rate includes cost of GI chain link - 12 g, 1.5" x 3/8" bolt, nuts, washers all labour and all other incidental etc complete. Necessary MS flats & angles for posts will be supplied by BHEL HPVP at free of cost. Fabrication charges for MS flat, posts and drilling of holes etc will be paid under structural fabrication item. (as per drawing enclosed)	Sq.m	56			
22	Grouting the H.D bolts, underneath the base plates etc., after alignment with non-shrink high strength cementitious grout such as Tec. Grout 20/40 or Pidigrout 5M/10M or Flogrout 40/60 or Conbextra GP1/GP2 or any other equivalent grout, all as per instructions of Engineer in charge and as per standard specifications. Rate includes cost of non- shrink grout, cleaning the sleeves/pockets, tools, labour etc., complete.	Cu.m	0.5			
23	Conveying from BHEL HPVP stores to site of work, hoisting and fixing in position of 0.47 to 0.50 mm thick Bare Galvalume rib profile sheets with accessories such as ridge pieces, barge boards, curves etc., for roofing, side cladding etc., and fixing them in proper position with necessary Xylon coated self tapping / self drilling screws with EDPM washers at every ribs, etc., complete all as per drawings, specifications and instructions of Engineer - in - charge. Rate includes cost of self tapping / self drilling screws with EDPM washer etc., and labour charges, all scaffolding charges , tools and plants and other incidental charges., complete including cost of Galvalume sheet and its accessories such as ridge pieces, barge boards, curves etc, which will be supplied by BHEL HPVP at stores of free of cost. The payment will be made for the actual laid area only.	Sq.m	50			

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
24	ROAD WORKS					
a	Preparation of sub grade by excavating earth to an average of 25 cm depth dressing to camber and consolidating with road roller of capacity 8-12 tones including making good the undulation etc., and disposal of surplus earth within the plant premises and stacking the same as specified.	Sq.m	450			
b	Supplying and laying approved soil and consolidation with road roller including spreading and consolidation to achieve the specified formation level including surface preparation	Sq.m	450			
c	Supplying and laying water bound macadam consolidated to 150mm thick in two layers (75mm thick each layer) each layer with stone aggregate 63-45mm Grade-II aggregate as per EIL specification including screening sorting, spreading to template and consolidation of each layer with roller of capacity 8-12 tonnes complete including spreading watering blinding with moorum and consolidation complete to required gradient and camber with all material. (Rate shall be quoted for 150mm thick. i.e. 2 layers of 75mm thick)	Sq.m	450			
25	Collection from BHEL HPVP stores and transporting/carting to fabrication yard, fixing in position trolley rails in floor trenches including necessary lugs made of angles, sizing and cutting to required lengths, and welding as required and placing the same in position on re-embedded insert plates & welding the same to insert plates, including adjusting, tying and holding to correct level and line. Rate includes cost of all materials, labour etc., complete but excluding Rails and raw steel sections for lugs which will be supplied by BHEL HPVP at Stores at free of cost. (Details shall be as per the enclosed sketch)	MT	45			

ITEM NO.	DESCRIPTION	UNIT	QTY	Unit Rate in ₹	Amount in ₹	Amount in Words
26	Chipping and of existing Heavy duty flooring damaged layer approx 50 Thk. including all tools and tackles labour etc. as per directions of Engineer incharge. Cost included disposal of chipped material including all labour within the factory premises and spreading the same to level if required.	Sq.m	900			
27	Drilling the holes with help of Mechanical drilling machine, providing & fixing ½” PVC perforated nipples, providing & injecting Non shrink cementitious grout into the nipples etc. complete. Including cost of all tools, tackles, labour, machinery and non shrink cementitious material etc complete as directed by engineer incharge.	Each	200			
28	Collection from BHEL HPVP stores and transporting/carting to fabrication yard, fixing in position Over head crane rails including end stoppers on existing crane girder including providing necessary clips, bolting and welding as required and placing the same in position, tying and holding to correct level and line. Rate includes cost of all materials, labour etc., complete but excluding Rails which will be supplied by BHEL HPVP at Stores at free of cost as directed by Engineer Incharge (300 RMT)	MT	15			
29	Providing and fixing Friction grip Anchor Fastners as per the specification of M16 150 Lg. including cost of all tools, tackles and labour, including drilling of holes etc all complete as per the directions of engineer incharge	Each	150			
	Total					

Total Amount in Words :

SIGNATURE OF THE TENDERER WITH SEAL