

Tender No.: NHSRCL/VADODARA/OHT/2019-20/18

National High Speed Rail Corporation Limited (NHSRCL)
(A Joint Sector Company of Govt. of India and Participating
State Government)



CONSTRUCTION OF RCC OVER HEAD TANK OF CAPACITY 2.25 LACS LITRES
ALONG WITH RCC SUMP NEAR VADODARA YARD AREA IN CONNECTION
WITH MUMBAI AHMEDABAD HIGH SPEED RAILWAY PROJECT.

Tender No.: NHSRCL/VADODARA/OHT/2019-20/18

TENDER DOCUMENT
(One Packet System)

(Top Sheet, Notice Inviting Tender, Form of Bid, GCC, TOR, Special Condition,
Annexures, BOQ, Offer Sheet)

2019-20

National High Speed Rail Corporation Limited
3rd Floor, Productivity House, Productivity Road,
Alkapuri, Vadodara – 390007.


Dy. Chief Project Manager-Civil
उप मुख्य परियोजना प्रबंधक-सिविल
National High Speed Rail Corporation Ltd.
राष्ट्रीय उच्च गति रेल निगम लिमिटेड
वडोदरा / Vadodara


Tender No. NHSRCL/VADODARA/OHT/2019-20/18

Name of work -:	Construction of RCC overhead tank of capacity 2.25 lacs along with RCC sump near Vadodara yard area in connection with Mumbai Ahmedabad High Speed Railway Project.
Approximate cost -:	Rs. 91,25,616.91
Earnest money Deposit -:	Rs. 1,82,520.00
Tender Fees -:	Rs. 5,900.00 (Including 18 % GST)
Completion period -:	09 Months
Validity of offer -:	90 Days
Type of Tender -:	Open Tender
Pre-bid meeting date-:	25.07.2019 @ 1100 hrs
Tender closing date -:	07.08.2019 @ 1500 hrs
Tender opening date -:	07.08.2019 @ 1530 hrs
Place of submission & opening of Tender -:	Office of Chief Project Manager, National High-Speed Rail Corporation Ltd, 3 rd floor, Productivity House, Productivity Road, Alkapuri, Vadodara-390007.

(a) You may also note that the end of the document is marked as "**END OF DOCUMENT**". The total document is to be downloaded for submission of the offer otherwise the document will be treated as incomplete and therefore invalid.

(b) Tenderer(s) may please also note that if any change/addition/deletion with mala-fide intention is made by the bidder and the same is detected at any stage even after award of the tender, all necessary action including banning of business may be taken against the bidder.

(c) The NHSRCL before the due date & time of closure of issue of tender documents on its own or in response to any clarification requested or suggested by any person including that of the tenderer may modified the tender document at its sole discretion. **It will be the responsibility of the tenderers** who had downloaded the documents from the website to submit offer in the updated copy of the tender documents and NHSRCL way may not consider the offers downloaded from website if offer is not submitted in updated tender documents.


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वडोदरा / Vadodara

The tender document comprises of various parts and contains as under.

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NATIONAL HIGH-SPEED RAIL CORPORATION LIMITED VADODARA

Tenders are invited by National High-Speed Rail Corporation Ltd (NHSRCL) 3rd floor, Productivity House, Productivity Road, Alkapuri, Vadodara-390007 for the following work -:

Sr. No.	Name of Work & Tender No.	Approximate cost of the work (in Rs.)	Earnest money to be deposited (In Rs.)	Date and time for submission of tender and opening of tender	Web side particulars and notice for location where complete details can be seen etc.
1	<u>Tender No.</u> <u>NHSRCL/VADODARA/OHT/2019-20/18</u> Construction of RCC overhead tank of capacity 2.25 lacs along with RCC sump near Vadodara yard area in connection with Mumbai Ahmedabad High Speed Railway Project.	91,25,616.91	1,82,520.00	Tender closing -: 07.08.2019 @ 1500 hrs Tender opening:- 07.08.2019 @ 1530 hrs	Tender documents can be downloaded from www.nhsrcl.in Office of Chief Project Manager, National High-Speed Rail Corporation Ltd, 3 rd floor, Productivity House, Productivity Road, Alkapuri, Vadodara-390007.


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राष्ट्रीय उच्च गति रेल निगम लिमिटेड
वडोदरा / Vadodara

**NATIONAL HIGH-SPEED RAIL CORPORATION LIMITED
VADODARA**

TENDER FORM

First sheet

Name of work: -Construction of RCC overhead tank of capacity 2.25 lacs along with RCC sump near Vadodara yard area in connection with Mumbai Ahmedabad High Speed Railway Project.

To,
**The Chief Project Manager,
NATIONAL HIGH-SPEED RAIL CORPORATION LIMITED,
Alkapuri, Vadodara – 390007.**

1. I/We _____, have read the various conditions to the Tender attached hereto and hereby agree to abide by the said conditions. I/We also to keep this tender **open for acceptance for a period of 90 days** from the date fixed for opening the same and in default there of I/We will be liable for feature of my/our earnest money deposit. I/We offer to do the work for Chief Project Manager, National High-Speed Rail Corporation Limited (NHSRCL), Vadodara at the rates quoted in the attached Schedule and hereby bind myself/ourselves to complete the work in all respect within **09Months** from the date of issue of letter of acceptance of the Tender.
2. I/We also hereby agree to abide by the General Conditions of Contract July'14 edition corrected up to latest correction slip and to carry out the work according to Unified Standard Schedule of Rates 2011 (Works & Materials) for Western Railway & Unified Standard Specifications (Works & Materials) Vol. I & II of 2010 with latest amendments and Special Conditions of Contract and Specification of materials and work laid down by the Railway in the annexed special conditions/specifications, corrected up to latest correction slip up to date for the present contract
3. Bid must be accompanied by an Earnest Money Deposit of **Rs. 1,82,520.00** (Rupees One Lac Eighty Two Thousand Five Hundred Twenty only) by a crossed Demand Draft/Banker's Cheque/Fixed Deposit Receipt drawn by State Bank of India or any nationalized bank or Scheduled Bank of India in favour of NATIONAL HIGHSPEED RAIL CORPORATION LIMITED, payable at New Delhi. Please note that no interest is payable on EMD so long retained in NHSRCL and Fixed Deposit Receipt should be from Scheduled Bank endorsed in the favour of the client/Employer i.e. NATIONAL HIGH-SPEED RAIL CORPORATION LIMITED, payable at New Delhi. **Bid received without Earnest Money shall be summarily rejected.**
4. The full value of the Earnest Money shall stand forfeited without prejudice to any other right or remedies in case my/our tender accepted and if.


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राष्ट्रीय उच्च गति रेल निगम लिमिटेड
वडोदरा / Vadodara

- (A) I/We do not execute the contract documents within Seven days after receipt of notice issued by the NHSRCL that such documents are ready and
- (B) I/We do not commence the work within Ten days after receipt of orders to that effect.
5. Until a formal agreement is prepared and executed, acceptance of this Tender shall constitute a binding Contract between us subject to modifications as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer for this work.
6. If, I/We do not execute the contract agreement, the NHSRCL may determine such Tenders has abandoned the contract, and there upon my/our Tender and acceptance thereof shall be treated as cancelled and the NHSRCL be entitled to forfeit full amount of Earnest Money Deposit and to recover the liquidated damages for such default.

Signature of Witness: -

1)

2)

Tenderer's Address:-

.....
.....
.....

Signature of Tenderer(s)

Date: -

National High-Speed Rail Corporation Ltd,
3rd floor, Productivity House,
Productivity Road, Alkapuri,
Vadodara-390007



Dy. Chief Project Manager-Civil
उप मुख्य परियोजना प्रबंधक-सिविल
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वडोदरा / Vadodara

Signature of Tenderer

TENDER FORM

Second Sheet

1. INSTRUCTIONS TO TENDERERS AND CONDITION OF TENDER

The following documents form part of Tender/ Contract: -

a) Tender form – First sheet and second sheet.

b) Special Conditions/ Specification (enclosed).

c) Schedule of approximate quantities (enclosed).

d) Western Railway General Conditions of Contract (G.C.C.) July'14 edition corrected up to latest Correction slip. Copy of General Conditions of Contract can be obtained from the office of The Chief Engineer, Western Railway on prescribed payment.

e) Unified Standard Schedule of Rates 2011 (Works & Materials) for Western Railway & Unified Standard Specifications (Works & Materials) Vol. I & II of 2010 with latest amendments. Copy can be obtained on prescribed payment, from the office of the Chief Engineer, Western Railway Churchgate- Mumbai 400020.

1. Track Manual & Indian Railway P. Way Manual with latest amendments.

2. All General and detailed drawings pertaining to this work will be issued by the Engineer or representative (from time to time) with all changes and modifications

2. DRAWING FOR THE WORK

Drawing for the work can be seen in the office of the Chief Project Manager, National High Speed Rail Corporation Limited (NHSRCL), Vadodara at any time during the office hours. These drawings are only for the guidance of contractors. Detailed working drawings (if required), based generally on the drawings mentioned above, will be given by the Engineer or his representative from time to time.

3. The Tenderer(s) shall quote his /their rates as a percentage above or below the schedule of Rates of the NHSRCL as applicable to this Division except where he/they are required to quote item rates and must tender for all the items shown in the schedule of approximate quantities attached. The quantities shown in the attached schedule are given as a guide and are approximate only and are subject to variation according to the needs of the NHSRCL. The NHSRCL does not guarantee work under each item of the schedule.

4. Tenders containing erasures and/ or alternations of the tender documents are liable to be rejected. Any correction made by the Tenderer(s) in his/their entries must be attested by him /them.

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Signature of Tenderer

5. INSPECTION OF SITE BEFORE TENDERING ETC.

The Tenderer (s) shall inspect the proposed site of work and acquaint/themselves with the conditions, working hours, layout of land trees and shrub that he/they will have no cut, type of soil likely to be met within the borrow pits, stacking space for materials, approach road, pathways available, etc. and all relevant items connected with the execution of work. No claim shall be entertained for the contractor(s) making his/their own arrangements for approaches/approach road from outside NHRCL land and contractor(s) will bear entire expenses such as road taxes, payment for right of way etc. to outsiders and for construction of approaches/approach roads etc.

6. The works are required to be completed within the period stipulated in the tender document, from the date of issue of acceptance letter.

7. TENDER FEES

- (a) The tender documents to be downloaded from the official website of National High Speed Rail Corporation Limited www.nhsrcl.in for submitting the tender. The Tender fees (non-refundable & non-transferable) will have to be submitted in form of demand draft (Separate demand draft other than that of Earnest Money) in favour of National High Speed Rail Corporation Limited payable at New Delhi to be enclosed with the tender documents along with required DD / FDR towards Earnest Money Deposit of National High Speed Rail Corporation Limited, New Delhi.
In case, the offer is not accompanied with the valid tender fees, the tender will be summarily rejected.
- (b) You may please note that the documents being allowed to be downloaded with further condition that he/they agree to abide by the conditions laid down hereinafter in tender documents, before submitting his/their tender

8. EARNEST MONEY AND SECURITY DEPOSIT:-

(A) EARNEST MONEY

- (a) Bid must be accompanied by an Earnest Money Deposit of **Rs. 1,82,520.00** (Rupees One Lac Eighty Two Thousand Five Hundred Twenty only) by a crossed Demand Draft/Fixed Deposit Receipt drawn by State Bank of India or any nationalized bank or Scheduled Bank of India in favour of NATIONAL HIGH-SPEED RAIL CORPORATION LIMITED, payable at New Delhi. Please note that no interest is payable on EMD so long retained in NHRCL and Fixed Deposit Receipt should be from Scheduled Bank endorsed in the favour of the client/Employer i.e. NATIONAL HIGH-SPEED RAIL CORPORATION LIMITED, payable at New Delhi. **Bid received without Earnest Money shall be summarily rejected.**
- (b) The Tenderer shall hold the offer open for the **period of 90 days** from the date fixed for opening the same. It is understood that the Tender documents have been sold/issued to the Tenderer and the Tenderer is being permitted to tender

in consideration of the stipulation on his part that after submitting his/their tender, subject to the period being extended further if required by mutual agreement from time to time, he will not resile from his offer or modify the terms and conditions thereof in manner not acceptable to the NHSRCL should the Tenderer fails to observe or comply with the foregoing stipulation, the aforesaid amount shall be liable to be forfeited to the NHSRCL.

- (c) The Earnest Money of the unsuccessful tenderer(s) will, save as here-in-before provided, be returned to the unsuccessful tender(s) within a reasonable time but the NHSRCL shall not be responsible for any loss or depreciation that may happen to the security for the due performance of the stipulation to keep the offer open for the period specified in the tender documents or to the Earnest Money while in their possession nor be liable to pay interest thereon.
- (d) The Earnest Money deposited by the successful Tenderer(s) will be retained towards the security deposit for the due and faithful fulfilment of the contract but shall be forfeited if the contractor fail/contractors fail to execute Agreement Bond within seven days after receipt of notice issued by the NHSRCL that such documents are ready or to commence the work within Fifteen days after receipt of orders to that effect.

(e) Releasing of EMD

Following procedure shall be applicable for releasing of EMD.

- (i) In case of single packet system of tendering, the Earnest Money submitted by all the tenderers except L1, may be released after the acceptance of the offer of L1.
- (ii) In case negotiations are proposed to be held, the Earnest Money submitted by all the tenderers other than the tenderers with whom negotiation has been proposed, may be released after the acceptance of the recommendations of the tender committee by the accepting authority for holding negotiations.
- (iii) If the tender is not finalized within the original validity period, the EMD of the tenderers who do not agree to extend the validity of their offers may be released. This may, however, be done only after the receipt of refusal from the tenderers for any further extension, in writing.

(B) SECURITY DEPOSIT: -

- (1) The Earnest Money deposited by the Contractor with his tender will be retained by the NHSRCL as part of security for the due and faithful fulfilment of the contract by the contractor. The balance to make up the security deposit, the rates for which are given below, may be deposited by the contractor in cash or may be recovered by percentage deduction from the contractor's "on account" bills. Provided also that in case of defaulting contractor the NHSRCL may retain any amount due for payment to the contractor on the pending "on account bills"

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वडोदरा / Vadodara

Signature of Tenderer

so that the amounts so retained may not exceed 10% of the total value of the contract.

- (2) Unless otherwise specified in the special conditions, if any the Security Deposit/rate of recovery/mode of recovery shall be as under: -
- (a) Security Deposit for each work should be 5% of the contract value.
- (b) The rate of recovery should be at the rate of 10% of the bill amount till the full security deposit is recovered.
- (c) Security Deposits will be recovered only from the running bills of the contract and no other mode of collecting SD such as SD in the form of instruments like BG, FD etc. shall be accepted towards Security Deposit.

Security Deposit shall be returned to the contractor after the physical completion of the work as certified by the competent Authority and after expiry of 12 months after the satisfactory test on water tightness. The Competent Authority shall normally be the authority who is competent to sign the contract. If this Competent Authority is of the rank lower than JA Grade, then a JA Grade Officer (concerned with the work) should issue the certificate. The certificate, inter alia, should mentioned that the work has been completed in all respects and that all the contractual obligations have been fulfilled by the contractors and that there is no due from the contractor to NHSRCL against the contract concerned. Before releasing the SD, an unconditional and unequivocal no claim certificate from the contractor concerned should be obtained.

- (3) No interest will be payable upon the Earnest Money and Security Deposit or amounts payable to the Contractor under the contract, but Government Securities deposited in terms of sub Clause (1) of this clause will be payable with interest accrued thereon.

NOTE:-

- (i) After the work is physically completed, Security Deposit received from the running bills of a contractor can be refunded to him if he so desire, in lieu of FDR/irrevocable Bank Guarantee for equivalent amount to be submitted by him.
- (ii) In case of contracts of value Rs.50 Crore and above, irrevocable Bank Guarantee can also be accepted as a mode of obtaining Security Deposit.
- (iii) No interest will be payable upon the Earnest Money and Security Deposit or amounts payable to the Contractor under the contract, but Government Securities deposited in terms of sub Clause (1) of this clause will be payable with interest accrued thereon.

- 9. RIGHTS OF NHSRCL TO DEAL WITH TENDERS:** -The authority for the acceptance of the Tender will rest with the NHSRCL it shall not be obligatory on the said authority to accept the lowest tender or any other tender and no tenderers shall demand neither any explanations for the cause of rejection of his/their tender

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nor the NHRCL to assign reasons for declining to consider or reject any particular tender or tenders.

10. If the Tenderer(s) deliberately gives/ give wrong information in his/their Tender or creates/create circumstances for the acceptance of his/their Tender, the acceptance of his/the NHRCL reserves the right to reject such Tender at any stage.
11. If the Tenderer(s) expires after the submission of his/their Tender or after the acceptance of his/their tender, the NHRCL shall deem such Tender as cancelled. If a partner of a firm expires after the submission of their Tender or after acceptance of their Tender, the NHRCL shall deem such Tender as cancelled, unless the firm retains its character.

12. TENDERER'S CREDENTIALS:

Tenderer(s) who has/have carried out any work so far on this NHRCL and who is/are required to submit in duplicate particulars regarding his/their financial position commensurate with amount of contracting supported by a Bank reference and credentials certificates duly attested by a Gazetted Officer and testimonials regarding experience for the type of job which this tender is invited with list of works giving cost thereof, carried out in the part along with the tender. Para regarding Eligibility criteria applicable for all open tenders costing Rs. 50 Lakhs and above given in clause no. 38 of special condition/ specification of contract may be referred in this regard. Non-compliance with any of the conditions set forth therein above is liable to result in the tender being rejected.

13. EXECUTION OF CONTRACT DOCUMENTS: -

The successful Tenderer(s) shall be required to execute an agreement with NHRCL for carrying out the work according to 'General Conditions of Contract', Special Conditions/Specifications annexed to the tender and the documents as mentioned in Tender form (First Sheet & second sheet)

14. PARTNERSHIP DEEDS, POWER OF ATTORNEY ETC.

The Tenderer shall clearly specify whether the tender is submitted on his own behalf or on behalf of partnership concern, if the tender is submitted on behalf of partnership concern he should submit partnership deed along with the Tender and authorization to sign the tender document on behalf of partnership concern. The NHRCL will not be bound by any power of Attorney granted by the Tenderer or by changes in the composition of the firm made subsequent of the execution of the contract. It may however recognize such power of attorney and charges after obtaining legal advice the cost of which will be chargeable to the contractor.

15. The Tenderer whether a sole proprietor or a limited company or a partnership firm if they want to act through agent or individual partner/partners should submit the Tender or at a later stage a power of attorney duly stamped and authenticated by a Notary public or by Magistrate in favour of the specific person whether he/they be partners of the firm or any other person specifically authorizing him/them to submit

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the Tender, sign the agreements, receive money, witness measurements, sign measurement books, compromise, settle, relinquish any claim or claims preferred by the firm and sign ' No Claim Certificate 'and refer all or any disputes to arbitration.

16. PERFORMANCE GUARANTEE (Performa attached):-

As per the board's letter Revised Clause 16(4) to Indian Railways General Conditions of Contract (Ref.: Item-I to Railway Boards Letter No. 2007/CE. I/CT/18 Pt. XII, dated 31.12.2010)

"Clause 16(4). Performance Guarantee"

The procedure for obtaining Performance Guarantee is outlined below:

- (a) The successful bidder shall have to submit a Performance Guarantee (PG) within 30 (thirty) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 30 (thirty) days and upto 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 15% per annum shall be charged for the delay beyond 30 (thirty) days, i.e. from 31st day after the date of issue of LOA. In case the contractor fails to submit the requisite PG even after 60 days from the date of issue of LOA, the contract shall be terminated duly forfeiting EMD and other dues, if any payable against that contract. The failed contractor shall be debarred from participating in re-tender for that work.
- (b) The successful bidder shall submit the Performance Guarantee (PG) in any of the following forms, amounting to 5% of the contract value:
- (i) A deposit of Cash;
 - (ii) Irrevocable Bank Guarantee;
 - (iii) Government Securities including State Loan Bonds at 5% below the market value;
 - (iv) Deposit Receipts, Pay Orders, Demand Drafts and Guarantee Bonds. These forms of Performance Guarantee could be either of the State Bank of India or of any of the Nationalized Banks;
 - (v) Guarantee Bonds executed or Deposits Receipts tendered by all Scheduled Banks;
 - (vi) A Deposit in the Post Office Saving Bank;
 - (vii) A Deposit in the National Savings Certificates;
 - (viii) Twelve years National Defence Certificates;
 - (ix) Ten years Defence Deposits;
 - (x) National Defence Bonds and
 - (xi) Unit Trust Certificates at 5% below market value or at the face value whichever is less. Also, FDR in favour of FA&CAO (free from any encumbrance) may be accepted.

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National High Speed Rail Corporation Ltd.

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NOTE: The instruments as listed above will also be acceptable for Guarantees in case of Mobilization Advance.

- (c) The Performance Guarantee shall be submitted by the successful bidder after the Letter of Acceptance (LOA) has been issued, but before signing of the contract agreement. This P.G. shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case, the time for completion of work gets extended, the contractor shall get the validity of P.G. extended to cover such extended time for completion of work plus 60days.
- (d) (i) The value of PG to be submitted by the contractor will not change for variation up to 25% (either increase or decrease).

In case during the course of execution, value of the contract increases by more than 25% of the original contract value, additional Performance Guarantee amounting to 5% (Five percent) for the excess value over the original contract value shall be deposited by the contractor.

On the other hand, if the value of the contract decreases by more than 25% of the original contract value, Performance Guarantee amounting to 5% (Five percent) of the decreases in the contract value shall be returned to the contractor. The PG amount in excess of required PG for decreased contract value, available with NHRCL, shall be returned to contractor as per their request duly safeguarding the interest of NHRCL.

(d) (ii) The procedure to release "Excess PG available with NHRCL with respect to required PG for decreased contract value" will be as under:

- a. Contractor shall submit his request to release current PG, along with submission of a revised PG of requisite amount as notified / communicated by NHRCL, in any of the forms as per clause 16 (4) except in cases where earlier PG has been submitted either in case or Demand draft.
- b. NHRCL shall duly verify and confirm the genuinely of revised PG as per concurrent guidelines.
- c. After conformation regarding genuinely of revised PG of requisite value, earlier PG can be released.
- d. In cases where current PG is either in Cash or Demand draft, the "Excess PG available with NHRCL with respect to required PG for decreased contract value" shall be released duly considering the request of contractor.
- (e) The Performance Guarantee (PG) shall be released after physical completion of the work based on 'Completion Certificate' issued by the competent authority stating that the contractor has completed the work in all respects satisfactorily. The Security Deposit shall, however, be released only after expiry of the maintenance period and after passing the final bi II based on 'No Claim Certificate' from the contractor.
- (f) Whenever the contract is rescinded, the Security Deposit shall be forfeited and the Performance Guarantee shall be encased. The balance work shall be got done independently without risk & cost of the failed contractor. The

Dy. Chief Project Manager-Civil

उप मुख्य परियोजना प्रबंधक-सिविल

National High Speed Rail Signature of Tenderer

राष्ट्रीय उच्च गति रेल निगम लिमिटेड

वडोदरा / Vadodara

failed contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is a JV or a Partnership firm, then every member/partner of such a firm shall be debarred from participating in the tender for the balance work in his/her individual capacity or as a partner of any other JV/partnership firm.

- (g) The engineer shall not make a claim under the Performance Guarantee except for amounts to which the President of India is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of :
- i. Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer may claim the full amount of the Performance Guarantee.
 - ii. Failure by the contractor to pay to NHSRCL any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the Agreement, within 30 days of the service of notice to this effect by Engineer
 - iii. The Contract being determined or rescinded under provision of the GCC, the Performance Guarantee shall be forfeited in full and shall be absolutely at the disposal of the President of India.

17. DOCUMENTS TESTIFYING FINANCIAL STATUS.

In support of financial status the tenderers should submit attested certificate from employer/ Client, audited balance sheet duly certified by Chartered Accountant etc.


18. TENDER DOCUMENTS TO ARE NOT TRANSFERABLE:-

- 19.** The tender will be governed with General Conditions of Contract July 2014 edition corrected up to latest correction slip.

Signature of Tenderer(s)

Dated :.....

National High-Speed Rail Corporation Ltd,
3rd floor, Productivity House,
Productivity Road, Alkapuri,
Vadodara-390007


Dy. Chief Project Manager-Civil
उप मुख्य परियोजना प्रबंधक-सिविल
National High Speed Rail Corporation Ltd.
राष्ट्रीय उच्च गति रेल निगम लिमिटेड
वडोदरा / Vadodara

Signature of Tenderer

SPECIAL CONDITIONS /SPECIFICATIONS OF CONTRACT

1. The special and the work schedule shall gone the works to be executed under this contract in addition to and/or in part suspension of the General Conditions of Contract and Standard specifications and laid in the Western Railway Works Books part III as amended by correction slip up to date.
2. The Tenderer/Tenderers shall quote his/their rates on %age above or below provided schedule of rates in metric units of Western Railway's as applicable to Vadodara Division and must tender for all the items shown in the attached schedule.
3. It shall not be obligatory on the said authority to accept the lowest tender and no tender/tenderers shall demand any explanation for cause of rejection of his/their tender.
4. The tender shall keep the offer open for a period of 90 days from the date of opening of the tenders within which period being extended, further if required by mutual agreement from time to time. Any contravention of this condition will make the tender liable for forfeit of his Earnest Money Deposit in the Performances of the foregoing stipulation.
5. Tenders are invited on the basis of metric of units of rates given in the schedule of rates of NHSRCL.
6. Tenders not accompanied with proper Earnest Money Deposit in the recognize manner will be summarily rejected.
7. Bid must be accompanied by an Earnest Money Deposit by a crossed Demand Draft/ Fixed Deposit Receipt drawn by State Bank of India or any nationalized bank or Scheduled Bank of India in favour of NATIONAL HIGH-SPEED RAIL CORPORATION LIMITED, payable at New Delhi. Please note that no interest is payable on EMD so long retained in NHSRCL.
8. The NHSRCL Administration reserves the right to accept the tender in whole or part or may reject the same.
9. The tenderer is requested to sign all the pages of the tender documents.
10. When there is any conflict between these special conditions of Contract on one hand standard specifications and General Conditions of Contract of Western Railway on the other hand, the former shall prevail.
11. Any special condition stated by the tenderer(s) in covering letter submitted along with the tender shall be deemed as part of contract to such extent only as have explicitly been accepted by the NHSRCL.
12. **Partnership Deeds, Power of Attorney etc.:-** In terms of clause 13 of part I 'Regulation of Tender and Contract' of the G.C.C. The NHSRCL will not bound by power of attorney granted by the tenderer or by the changes in the composition of the firm made subsequent to the execution of the contract. It may however, recognize such power of attorney and changes after obtaining proper legal advise the cost of which will be chargeable to the contractor. These charges have been fixed at Rs.100/- payable by the Tenderer at the time of submitting the power of attorney for security and legal advice.

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If the power of attorney is not accepted, otherwise when for legal defect, the charges will be refunded if the power of attorney is refunded on account of legal defect for correction, separate charges of Rs.50.00 security of corrected power of attorney will be payable by the tenderer while resubmitting power of attorney.

The same charges will be recoverable for security of all documents. No power of attorney in favour of an individual person will be accepted if it is irrevocable except when it is in favour of bank.

13. That the tender whether the sole proprietor or a limited company/individual partner/partners should submit, along with the tender, the power of attorney duly stamped and authority by not public or by Magistrate in favour of specific person/persons whether he/they be partner/partners of the firm or another person's.
14. In case where the power of attorney/partnership deed has not been executed in English, the true and authenticated copies of the translation of the same by advocate authorized translators of courts and licensed petition writers should be supplied by the Contractor(s) while tendering for the work.
15. None of the Engineers should be related to the tenderer/tenderers. If the tenderer/tenderers fail to give the above declaration his/their tender will be ignored. In case it is subsequently discovered that the declaration as aforesaid in anyway in incorrect, or the information furnished therein found wrong Administration, reserves the right to take the action in accordance with clause 61 of the General Condition of the Contract will be taken. (Copy of Declaration form is attached).
16. **Use of NHSRCL Land:** - Use of NHSRCL land required by the Contractor(s) for constructing temporary offices, quarters, hutments, etc. for the staff and for storing materials, will be permitted to him/them free by NHSRCL, if available. The location of these offices, hutments, stores etc. will be subject to approval of Engineer or his representative. The land will be restored to NHSRCL by the Contractor(s) in the same conditions as when taken over in vacant condition as desired by the Engineer, after completion of the work or at any earlier day as specified by Engineer. The failure to do so will make the contractor(s) liable to pay the cost incurred by the NHSRCL for getting possession of land.
17. **Use of Private Land:** -The Contractor will have to make his/their own arrangement for use of private land outside NHSRCL limit for due fulfilment of contract or borrow pits, approaches, etc. directly with the landowners or local authority and to pay such rents if any as payable as may be mutually agreed upon between them.
18. **Returns:** -The tenderer shall furnish to the Executive Engineer every week during progress of the work a classified return of the number of the people employed on the work during the week preceding the period. The contractor shall also furnish to the Executive Engineer a report of any accident, which may have occurred within 24 hours of its occurrence.
19. **REPRESENTATION OF WORKS:** - The contractor should nominate his representative on the works who will leave authorized to receive and acknowledge materials issued by the NHSRCL and take all orders issued by inspecting officer of the NHSRCL.

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- 20. ERRORS, OMISSION AND DISCREPANCIES:** -The tender shall not take advantage of any misinterpretation of the condition due to typing or any other error and if any doubt shall bring it to the Engineer without delay in case of any contradiction, only the printed rules and books should be followed and no claim for the misinterpretation shall be entertained.
- 21. DEDUCTION FOR INCOME TAX:** -The NHSRCL will deduct 2% of Income Tax on the gross of each bill while making payment to the contractors. The settlement of Income Tax should be made with the Income Tax authorities.
- 22. TRESSPASS:** -The Contractor shall at times be fully responsible for any damage of trespass committed by his agents or workmen in carrying out the work, even if such trespass is authorized by engineer.
- 23. INFLAMMABLE ARTICLES:-**Inflammable materials, such as petrol, oil etc. shall be stored separately from the other materials and do precautions as required under the Indian Explosive Act, or any other Act shall be taken by the contractor(s) to prevent any fires etc.
- 24. FIGURES, DIMENSIONS ETC:** - Figures, dimensions and drawings shall supersede measurements by scale and drawing to larger scale shall take precedence over those to similar scale, special dimensions or direction in the specification shall supersede all else.
- 25. PLEA OF CUSTOM:** - The plea of custom prevailing will not on any account be permitted as an excuse for an infringement of any of the conditions of the contract or specifications.
- 26. ARRANGEMENT FOR PERMITS/ LICENSE:** - Arrangement for permits and license for materials will not be made by the NHSRCL or any assistance given. The contractor will have to make his own arrangement. Also, no important license shall be arranged by the NHSRCL for this work.
- 27. TAXES AND ROYALTIES:** - All rates quoted in the tender shall be deemed to be inclusive of all taxes, royalties (except GST) payable by the contractor(s) to the Government or the public body or local authority and no additional amount will be paid or claim entertained on this account by the NHSRCL.
- 28. NOTICE TO PUBIC BODIES:** - The contractor(s) shall give to the Municipality, Police and the other authorities all notices that may be required by law and obtain all requisite license of temporary obstructions, enclosures and pay all fees taxes/and charges which may be leviable on account of his operations in executing the contract, he should make good any damage to adjoining premises whether public or private and supply and maintain lights etc. required at sight.
- 29. WORKING HOURS:** - Work may be carried out round the clock if so desired by the contractor. The contractor(s) shall however be held responsible to ensure that none of the statutory laws are infringed.
- 30. SETTING OUT:** - The contractor(s) shall set out the works and shall be responsible for the true and perfect setting out of the same and for the correctness of the positions, levels appear during the progress of the work, the contractor at his own expenses should rectify such error if so requires to the satisfaction of the Engineer.


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31. CARE OF STAFF: - No quarters will be provided by the NHSRCL for the accommodations of the contractor or any of the staff employed on the work. The contractor may be allowed to erect any labour camps for housing the labour at or near the site of work on the available NHSRCL Land subject to payment of cess and water charges. The contractor shall at his own cost may call necessary and adequate arrangements for the importation, feeding and preservation at the hygiene of his staff.

The contractor shall permit inspection, at all times of all sanitary arrangements made by him, by the Engineer or his assistance or medical staff of the NHSRCL. If the contractor fails to make adequate medical, sanitary arrangements the same will be provided by the NHSRCL the cost thereof being recovered from the contractor.

32. DAMAGE BY ACCIDENT, FLOODS OR TIDES.

a) The contractor shall take all precautions against damages from accident, floods or tides. No compensation will be allowed to the contractor for his plant or material lost or damaged by any cause whatsoever. The contractor shall be liable to make good the damages to any structure or part of the structure, plant or material of every description belonging to the administration lost or damaged by any cause during the course of contractor's work.

b) The Administration will not be liable to the Contractor any charges for rectification or repairs to a payment which may have occurred from any cause, whatsoever, to any part of the new existing structure, during construction.

33. FIRST AID: - The contractor shall maintain at readily accessible place First Aid appliances including an adequate supply of sterilized cotton wool. The appliances shall be placed under the charge of responsible person who shall be reliable during working hours.

34. ANTI-MALARIA PRECAUTIONS: - Every precaution shall be taken by the contractor to prevent the breeding of mosquitoes on the works during construction and all receptacles used for the storage of water must be suitably protected for this purpose or must be emptied at close of the work every day.

35. ANTI-LARVAL TREATMENT: - Contractor(s) shall be entirely responsible for ensuring that anti-larval work as per the bye-laws of the local authorities/corporations or such other bodies etc. is provided at the cost of contractor(s).

36. MEASUREMENTS IN METRIC UNITS: - Measurement and payment will be made in metric units

37. INSPECTION REGISTER: - An inspection register shall be maintained at the site of work by the NHSRCL wherein instructions regarding the working etc. shall be recorded by the Engineer or his executive sub-ordinates. It is expected of the contractor or his representative at the site to note such instructions wherever asked upon to do so and take action accordingly.


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38. MINIMUM ELIGIBILITY CRITERIA FOR OPEN TENDERS COSTING Rs. 50 LACS AND ABOVE: -

1.	Should have completed at the time of opening of tender in the last Three financial years (i.e. current year and three previous financial years).	:	At least one similar single work for a minimum value of 35% of Advertised tender value of work.
2.	Total contract amount received during the last three Financial years and in the Current Financial Year.	:	Should be a minimum of 150% of advertised Tender value of Work, in Support of which authentic certificates shall be produced by the tenderer (s) to this effect which may be on Attested Certificate from the Employer/Client, audited balance sheet duly Certified by Chartered Account etc. Should be submitted by the tenderer.

Similar work - "Construction of RCC overhead tank of capacity one lac or above."

The tenderer is required to submit proof as how they meet the eligibility criteria for the tendered work. In case they do not submit any proof for the same, the offer will be considered incomplete and will be summarily rejected.

TENDERER'S CREDENTIALS: -In support of their credentials, the tenderers should submit following documents along with their tenders.

- List of Personnel, Organization available on hand and proposed to be engaged for subject work in proforma at Annexure-A.
- List of plant & Machinery available on hand (own) and proposed to be inducted (own and hired to be given separately) for the subject work in proforma at Annexure-B.
- List of works completed in the last three financial years giving description of work, organization for whom executed, approximate value of contract at the time of award, date of award and date of scheduled completion of work. Date of actual start, actual completion and final value of contract should also be given in proforma at Annexure-C.
- List of works on hand indicating description of work, contract value, and approximate value of balance work yet to be done and date of award in proforma at Annexure-D.

NOTE: -

- In case of items 'c' and 'd' above, supportive documents/certificates from the organizations with whom they have worked/are working should be enclosed.
- "Certificates/Credential issued by private individuals/Organizations shall not be accepted. (Amended in terms of CE/W/CCG'S letter No w/118/0 Vol VII (W6) Dated 11.12.14)


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- iii. Tenderer shall submit adequate documentary proof of having fulfilled the eligibility criteria. There will be no back reference to confirm credentials, except for the purpose of verifying the certificates submitted along with the tender.
- iv. If tenderer do not submit any proof of meeting with eligibility criteria as laid down in the NIT and tender conditions, offer shall be treated as incomplete and should be summarily rejected.

39. Safety at work site.

Instructions issued in "Compendium of Instructions on Safety at Work Site" issued in April 2008 duly signed by both CAO@WR and PCE/WR on 28-04-2008 and 30-04-2008 respectively duly circulated vide CTE/CCG's letter No.T5/18/29(Safety) dated 05.05.2008 is required to be followed before/during the execution of the work. Copy of the same can be obtained from the concerned ADENs.

Address: -

Signature of Tenderer
Dated:-



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DECLARATION

1. I AM/WE ARE NOT RELATED TO ANY ONE EMPLOYEE ON ANY CAPACITY BY THE NHSRCL.

OR

2. I/WE DRAW ATTENTION TO THAT FACT THE I/WE ARE RELATED TO THE FOLLOWING EMPLOYEES OF THE NHSRCL.

Sr. No.	Name of the Employee	Department	Degree of Relationship

SIGNATURE OF TENDERER: - _____

ADDRESS: - _____

NOTE: - ITEMS WHICH IS NOT APPLICABLE SHOULD BE STRUCK OFF.

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National High-Speed Rail Corporation Limited

Description of work	Approximate cost of the work (in Rs.)	Earnest money to be deposited (In Rs.)
NHSRCL/VADODARA/OHT/2019-20/18:- Construction of RCC overhead tank of capacity 2.25 lacs along with RCC sump near Vadodara yard area in connection with Mumbai Ahmedabad High Speed Railway Project.	91,25,616.91	1,82,520.00

NOTE: -

1. The above list and cost is only tentative and the administration reserves the right to increase or decrease the work to be carried out.
2. The contractor shall quote the rate of percentage basis above or below the NHSRCL printed revised schedule of rates in force. The rates in the NHSRCL Schedule under the Vadodara Division are applicable for the above work. In case rates for any item of work do not exist in the printed schedule of rates special rates will be worked out for such items on the basis of the schedule of rates. The contractor's quotation above or below the schedule of rates will be apply to such special rates also.
3. The estimate carrying the items of the work to be carried out may be seen by the contractor in the office of the Office of Chief Project Manager, National High-Speed Rail Corporation Ltd, 3rd floor, Productivity House, Productivity Road, Alkapuri, Vadodara-390007
4. The rates include all plant of every description and all means whatsoever employed for executing the work and also includes freight charges No extra amount will be paid for conveying the materials from the station or the stores depot to the site of work.

Address: -

Signature of Tenderer

Date: -


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Deviation/special Condition quoted by the tenderers

- i) "Tenderers should submit their offer strictly in accordance with the terms and conditions of the tender document. Tenderer should not quote any deviation from the tender document and should not quote any conditions.
- ii) Nevertheless, as an exception, if any unavoidable deviations or conditions are quoted by the tenderers, financial impact of each of such conditions/deviations on their quoted unit rates, in terms of Rupees per unit rate, shall be clearly mentioned by the tenderer in the tender offer.
- iii) If any of the deviation/condition has no financial impact on the quoted rates, in such cases also, the tenderer must clearly mention its financial impact as 'NIL'. This is required for proper financial evaluation of such conditional / deviated offers.
- iv) Conditional offers / offers with deviations, without quantified financial impact of each of the condition / deviation on the quoted rates, shall be considered as "incomplete" and shall be summarily rejected."

Address: -

Signature of Tenderer

Date: -


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BANK GUARANTEE BOND

To,
**The Chief Project Manager,
NATIONAL HIGHSPEED RAIL CORPORATION LIMITED,
Alkapuri, Vadodara – 390007.**

In consideration of the President of India (hereinafter called “the Government”) having agreed to accept from..... (hereinafter called “ the said Contractor/s), under the terms and conditions of an Agreement/Acceptance letter dated.....made between.....and (herein after called “the said Agreement”) the Performance Guarantee for the due fulfilment by the Contractors of the terms and conditions in the said Agreement on production of Bank Guarantee for Rs..... Rupees..... only) We..... Indicate the name of the Bank herein after referred to as the Bank) at the request of..... contractor/s do hereby undertake to pay the government an amount not exceeding Rs.....against any loss or damage caused to or suffered by or would be caused to or suffered by the Government by reason of any breach by the said contractor(s) of any of the terms or conditions contained in the said agreement.

2.We.....(indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on demand from the government stating that the amount claimed is by way of loss or damage caused to or suffered by the Government by reason of breach by the said contractor/s of any of the terms or conditions contained in the said agreement or by reasons of the contractor/s failure to perform the Agreement, any such demand made on the bank shall be conclusive as regards the amount due and payable to the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....

3.We undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) /supplier(s) in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s)/suppliers(s) shall have no..... against us for making such payment.

4.We,(indicate the name of the bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement, including maintenance/Warrantee period, and that it shall continue to be enforceable till the dues of the Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till..... office/Department) NHSRCL certifies that the terms and conditions of Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharged this guarantee, unless a demand or claim under this guarantee is made on us in writing on or before

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the.....we shall discharged from all liability under this guarantee thereafter.

5.We,(indicate the name of the Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone from any time or from time to time any of the powers exercisable by the Government against the said contract and to forebear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reasons of any such variation, or extension being granted to the contractor/s or for any forbearance act or omission on the part of the government or indulgence by the Government to the said contractor(s) or such any matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6.This guarantee will not be discharged due to the change in the constitution of the bank or the Contractor(s)/Supplier(s).

7.We,(indicate the name of Bank)undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing.

Dated this.....day of.....2019.


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SPECIAL CONDITIONS & SPECIFICATION OF CONTRACT PART I

1. Variation in quantities during execution of Works Contracts Reference Railway Boards Letter No. 2007/CE-I/CT18 dated 28.09.2007)

New Clause 42(4) to Indian Railways General Conditions of Contract (Ref.: Item-9 to Railway Board's letter No.2007ICE-I/CT/18, dated 28.09.2007 and Item-2 to letter No. 2007 ICE.I/CT 118 Pt. XIII, dated 31.12.2010)

The procedure detailed below shall be adopted for dealing with variations in quantities during execution of works contracts:

1.1. Individual NS items in contracts shall be operated with variation of plus or minus 25% and payment would be made as per the agreement rate. For this, No finance concurrence would be required.

1.2. In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, the same shall be got executed by floating a fresh tender. If floating a fresh tender for operating that item is considered not practicable, quantity of that item may be operated in excess of 125% of the agreement quantity subject to the following conditions:

(a) Operation of an item by more than 125% of the agreement quantity needs the approval of an officer of the rank not less than S.A. Grade;

(i) Quantities operated in excess of 125% but up to 140% of the agreement quantity of the concerned item, shall be paid at 98% of the rate awarded for that item in that particular tender;

(ii) Quantities operated in excess of 140% but up to 150% of the agreement quantity of the concerned item shall be paid at 96% of the rate awarded for that item in that particular tender;


(iii) Variation in quantities of individual items beyond 150% will be prohibited and would be permitted only in exceptional unavoidable circumstances with the concurrence of associate finance and shall be paid at 96% of the rate awarded for that item in that particular tender.

(b) The variation in quantities as per the above formula will apply only to the Individual items of the contract and not on the overall contract value.

(c) Execution of quantities beyond 150% of the overall agreement value should not be permitted and, if found necessary, should be only through fresh tenders or by negotiating with existing contractor, with prior personal concurrence of FA&CAO / FA & CAO(C) and approval of General Manager.

1.3. In cases where decrease is involved during execution of contract:
(a) The contract signing authority can decrease the items up to 25% of individual item without finance concurrence.

(b) For decrease beyond 25% for individual items or 25% of contract agreement value, **the approval of an officer not less than rank of S.A. Grade may be taken, after obtaining 'No Claim Certificate'** from the contractor and with finance concurrence, giving detailed reasons for each such decrease in the quantities.


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(c) It should be certified that the work proposed to be reduced will not be required in the same work.

- 1.4. The limit for varying quantities for minor value items shall be 100 % (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1% of the total original agreement value.
- 1.5. **No** such quantity variation limit shall apply for foundation items.
- 1.6. As far as SOR items are concerned, the limit of 25% would apply to the value of SOR schedule as a whole and not on individual SOR items. However, in case of NS items, the limit of 25% would apply on the individual items irrespective of the manner of quoting the rate (single percentage rate or individual item rate).
- 1.7. The aspect of vitiation of tender with respect to variation in quantities should be checked and avoided. In case of vitiation of the tender (both for increase as well as decrease of value of contract agreement), sanction of the competent authority as per single tender should be obtained.
2. The work is required to be completed within the completion period as mentioned in notice inviting tenders from the date of letter of acceptance of tender.
3. The contractor shall be required to maintain the work satisfactorily in all respect for a period of **Six month from the date of completion of work and** issue of completion certificate by the sub-ordinate in charge of the work, in terms of claim of General Conditions of Contract. Failing sub ministration to keep the structure in style stated as above will be recovered from the security deposit of this work or any other work.
4. Taxes as applicable from time to time will be deducted from Contractor's running and final bills as per extent rules.
 - (a) If extra steel for reinforcement over that in drawing or any extra quantity of a cement over to the standard scale has to be issued to the contractor, due to unreasonable waste, bad workmanship or any other similar cause, the cost of such extra cement and steel will be recovered from the contractor at DOUBLE the rate as increased by freight handling, supervision and other charges as per extent rules.
 - (b) This formula will also be applied for less utilization of cement/steel.
5. Measurements signing measurements billing comprising to settle to relinquish any claim preferred by the firm and signs 'NO CLAIM CERTIFICATE'.
6. (i) The provision of clause 63 & 64 to the General Conditions of Contract will be applicable only for the settlement of claims or disputes between the parties for values less than or equal to 20% of the value of the contract provisions of clause 63 & 64 and
(ii) When the claim of disputes are of value more than 20% the value of the contract, other relevant clause of the General Conditions of Contract will not be applicable and arbitration will not be a remedy for settlement of such dispute.
7. The special condition 6(i) and (ii) shall prevail over existing clause 63 of the General Conditions of Contract.

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8. "If any dispute arises between the parties with respect to this agreement, any application or suit shall be instituted only in the Court with the local limits of whose jurisdiction, the Chief Project Manager, National High Speed Rail Corporation Limited (NHSRCL), Vadodara is situated & both the parties shall be bound by this clause."
9. In every case in which the virtue of the provisions of section 12 sub-section (-) of The workmen's compensation Act 1973 NHSRCL is obliged to pay the compensation to workmen employ by the contractor and supplied to the NHSRCL for executing the work. NHSRCL will recover from the contractor the amount of compensation so paid without prejudice to the right of NHSRCL deducting from Security Deposit or and such due to the contractor weather under this contract otherwise, NHSRCL will not bound to contest any claim made against it under this contract otherwise. NHSRCL will not bound to contest any claim made against it under section-2 sub-section (1) of the said Act except on the written request of the contractor and upon his giving to NHSRCL full security for all cost for which NHSRCL might become liable in consequence of any tendering and such claim.

10. Cess Charges

(a) For contractor's labour employed/residing at station and colonies where NHSRCL sanitary facilities exist; contractor(s) will be required to pay cess charges as per rules in force on the NHSRCL from time to time.

(b) For labour working between stations or at isolated place where NHSRCL facilities for their labour in terms of clause 59(4) of the General Conditions of Contract in case of any failure of his/their part, the necessary facilities shall be provided by the NHSRCL administration at the cost of contractor(s) and expenditure thus incurred will be recovered from his/their bills.

11. Drinking Water

(a) The tendered shall provide and maintain at suitable place at easily accessible to labour a sufficient supply of water fit for drinking.

(b) The contractor(s) shall make his/their own arrangement for people and water Supply required for the execution of the work as well as for this labour.

12. Contractor's responsibility to arrange Tools, Plants, Machinery etc:-The contractor should make their own arrangements for all plants and tools required for the successful completion of the work in time.

13. Material supplied by NHSRCL:-Tendered shall be responsible to see that the material such as cement, steel etc. supplied by the administration are utilizing for the sole purpose, for which they have been issued to him, failing which, he is liable to dealt according to law for any misuse of these commodities by himself, his agents or workmen, etc.

14. 'A'. Clause 26A to GCC: Deployment of qualified Engineers at works sites by the contractor.

In item of provision of new clause 26A1 of General Conditions of contract vide Railway Board letter No.2012/CE-I/CT/0/20 dated 10.05.2013 circulated vide PCE/CCG letter No.W/118/0 Vol.V (W6) dated 03.06.2013, the contractor shall employ qualified graduate engineer or qualified diploma holder engineer during the execution of work as per below :

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राष्ट्रीय उच्च गति रेल निगम लिमिटेड
वडोदरा / Vadodara

- (a) **One qualified graduate engineer when cost of work to be executed is Rs.200 lakhs and above, and**
- (b) **One qualified diploma holder engineer when cost of work to be executed is more than Rs.25 lakhs, but less than Rs.200 lakhs.**

In case the contractor fails to employ the qualified engineer, as aforesaid in Para 14A(a) & (b)above, he, in terms of provisions of clause 26A.2 to the General conditions of contract, shall be liable to pay an amount of Rs.40,000 and Rs.25,000 for each month or part thereof for the default period for the provisions, as contained in Para 14A (a) and (b) above respectively.

The contractor would be required to furnish the name, with complete bio data including the work experience of the Engineer/Supervisor to the Divisional/Executive Engineer in charge of work, for his approval.

The technical supervisor given above shall be available at site during the execution of work to ensure quality, quantity of work as also ensure safety as work site and that of the workers and whenever required by the Engineer in charge, to take instructions.

The Assistant Engineer shall record in the measurement book in each running bill/final bill, the certificate to the effect that the contractor has employed the requisite technical Engineer/Supervisor as per the norms stipulated in the contract and for his/their absence necessary recovery has been made from the contractor's bill.

- 15. Wages To Labour: (GCC Clause 54)** - The Contractor shall be responsible to ensure compliance with the provision of the Minimum Wages Act, 1948 (hereinafter referred to as the "said Act" and the Rules made thereunder in respect of any employees directly or through petty contractors or subcontractors employed by him on road construction or in building operations or in stone breaking or stone crushing for the purpose of carrying out this contract.

If, in compliance with the terms of the contract, the Contractor supplied any labour to be used wholly or partly under the direct orders and control of the NHSRCL whether in connection with any work being executed by the Contractor or otherwise for the purpose of the NHSRCL such labour shall, for the purpose of this Clause, still be deemed to be persons employed by the Contractor.

If any moneys shall, as a result of any claim or application made under the said Act be directed to be paid by the NHSRCL, such money shall be deemed to be moneys payable to the NHSRCL by the Contractor and on failure by the Contractor to repay the NHSRCL any moneys paid by it as aforesaid within seven days after the same shall have been demanded, the NHSRCL shall be entitled to recover the same from any moneys due or accruing to the contractor under this or any other Contract with the NHSRCL.

- 16. Apprentices Act: (GCC Clause 54-A)**

The Contractor shall be responsible to ensure compliance with the provisions of the Apprentices Act, 1961 and the Rules and Orders issued thereunder from time to time in respect of apprentices directly or through petty contractors or subcontractors employed by him for the purpose of carrying out the Contract.

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If the contractor directly or through petty contractors or sub-contractors fails to do so, his failure will be a breach of the contract and the NHSRCL may, in its discretion, rescind the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation of the provisions of the Act.

Note: The contractors are required to engage apprentices when the works undertaken by them last for a period of one year or more and/or the cost of works is rupees one lakh or more.

17. Provisions Of Payments Of Wages Act: (GCC Clause 55) The Contractor shall comply with the provisions of the Payment of Wages Act, 1936 and the rules made thereunder in respect of all employees employed by him either directly or through petty contractors or sub-contractors in the works. If in compliance with the terms of the contract, the Contractor directly or through petty contractors or sub-contractors shall supply any labour to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer, such labour shall never the less be deemed to comprise persons employed by the contractor and any moneys which may be ordered to be paid by the Engineer shall be deemed to be moneys payable by the Engineer on behalf of the Contractor and the Engineer may on failure of the Contractor to repay such money to the NHSRCL deduct the same from any moneys due to the Contractor in terms of the contract. The NHSRCL shall be entitled to deduct from any moneys due to the contractor (whether under this contract or any other contract) all moneys paid or payable by the NHSRCL by way of compensation of aforesaid or for costs of expenses in connection with any claim thereto and the decision of the Engineer upon any question arising out of the effect or force of this Clause shall be final and binding upon the Contractor.

18. PROVISION OF CONTRACT LABOUR (REGULATION AND ABOLITION) ACT 1970. (GCC Clause 55-A)

- 18.1.** The Contractor shall comply with the provisions of the contract labour (Regulation and Abolition) Act 1970 and the contract labour (Regulation and Abolition) central rules 1971 as modified from time to time. Whenever applicable and shall also identify the NHSRCL from and against any claims under the aforesaid Act and the Rules.
- 18.2.** The contractor shall obtain a valid licensee under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid license until the completion of the work. Any failure to full fill this requirement shall attract the penal provision of the contract arising out of the resultant non-execution of the work.
- 18.3.** The contractor shall pay to employed by him directly or through sub-contractor the wages as per provision of the aforesaid Act and the Rules wherever applicable. The contractor shall not be withstanding the provision of the aforesaid Act and Rule wherever applicable. The contractor shall not be withstanding the provision of the contract to the country, cause to be paid the wages to labour indirectly engaged on the work including any engaged by his sub-contractor in connection with the said works, as if the labour had been immediately employed by him.

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- 18.4.** In respect of all labour directly or indirectly employed in the work performance of the contractor's part of the contract, the contractor shall comply with or cause to be complied with provision of the aforesaid Act and Rules wherever applicable.
- 18.5.** In every case which may virtue of the provision of the aforesaid Act and Rules, the **NHSRCL is obliged to pay amount of wages to a workman employed by the contractor** or his sub-contractor in execution of the work or to incur any expenditure in providing welfare and health amenities required to provide under the aforesaid Act and Rules or to incur expenditure on account of the contingent liability of the NHSRCL due to the contractor's failure to fulfill his statutory obligations under the aforesaid Act and Rules the NHSRCL will recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred and without prejudice to the right of NHSRCL under section 20, sub section (2) and section 21, sub section(4) of the aforesaid Act, the NHSRCL shall be at liberty to recover such amount or part thereof by deducting the security deposit and/or from any sum due by the NHSRCL to the contractor whether the contractor or otherwise.
- 18.6.** The NHSRCL shall not be bound to contest any claim made against it under sub-section (1) of section 20 and sub-section (4) of section 21 of the aforesaid Act except on the written request of the contractor and upon his giving to the NHSRCL might become liable in contesting such claim. The decision of the NHSRCL regarding the amount actually recoverable from the contractor as stated above shall be final and binding on contractor.
- 19. Provisions of Employees' Provident Fund and Miscellaneous Provisions Act 1952 (GCC Clause 55-B)**-In reference to Railway Board's Letter No.2012/CE-1/CT/0/22 dated 14-12-2012 circulated vide PCE / CCG's letter No.W.118/0/Vol.V (W.6) dated 01.01.2013, the contractor shall comply with the provisions of Para 30 and 36 - B, of the Employer's Provident Fund Scheme 1952 : Para 3 and 4 of Employees' Pension Scheme 1995 and Para 7 & 8 of Employees' Deposit Linked Insurance Scheme 1976 as modified from time to time through enactment of "Employees Provident Fund and Miscellaneous Provisions Act 1952, where ever applicable and shall also indemnify the NHSRCL from and against any claims under the aforesaid Act and the rules"

20. Implementation of building and other construction workers (RECS) act 1996 and the building and other construction workers welfare cess act 1996 in Railway contracts (GCC Clause 55-C)

As per Railway Board letter circular No. 2008/CE-I/CT/6 dated 09.07.2008 circulated vide Western Railway Head Quarter office Churchgate letter No. W.118/0 Vol.III (W6) dated 24.07.2008 and further amended vide board letter No 2008/GE-I/ CT/6 Dt 29.11.13 circulated vide PCE/CCG.s letter No W/118/0 Vol –VI (W6) Dt 26..12.13

"The tenderers for carrying out any construction work must get themselves registered from the Registering Officer under Section 7 of the Building and Other Construction Workers Act, 1996" and rules made thereto by the concerned State Govt. and submit certificate of Registration issued from the Registering Officer of the concerned State Govt. (Labour Dept.) As per this Act, the tenderer shall be levied a cess @ 1% of cost of construction work,

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which would be deducted from each bill. Cost of material, when supplied under a separate schedule item, shall be outside the purview of cess".

- 21. Reporting Of Accidents :(GCC Clause 56)** The Contractor shall be responsible for the safety of all employees directly or through petty contractors or sub-contractor employed by him on the works and shall report serious accidents to any of them however and wherever occurring on the works Indian Railways Standard General Conditions Of Contract As On 30th June 2014 Page 51 to the Engineer or the Engineers Representative and shall make every arrangements to render all possible assistance.
- 22. Provision Of Workmen's Compensation Act : (GCC Clause 57)** In every case in which by virtue of the provisions of Section 12 Sub-Section (1) of the Workmen's Compensation Act 1923, NHSRCL is obliged to pay compensation to a workman directly or through petty contractor or subcontractor employed by the Contractor in executing the work, NHSRCL will recover from the Contractor the amount of the compensation so paid, and, without prejudice to the rights of NHSRCL under Section 12 Sub-section (2) of the said Act, NHSRCL shall be at liberty to recover such amount or any part thereof by deducting it from the Security Deposit or from any sum due by NHSRCL to the Contractor whether under these conditions or otherwise, NHSRCL shall not be bound to contest any claim made against it under Section 12 Sub-Section (1) of the said Act except on the written request of the Contractor and upon his giving to NHSRCL full security for all costs for which NHSRCL might become liable in consequence of contesting such claim.
- 23. Provision Of Mines Act : (GCC Clause 57-A)** The Contractor shall observe and perform all the provisions of the Mines Act, 1952 or any statutory modifications or re-enactment thereof for the time being in force and any rules and regulations made thereunder in respect of all the persons directly or through the petty contractors or sub-contractors employed by him under this contract and shall indemnify the NHSRCL from and against any claims under the Mines Act, or the rules and regulations framed thereunder, by or on behalf of any persons employed by him or otherwise.
- 24. NHSRCL Not To Provide Quarters For Contractors :(GCC Clause 58)** No quarters shall normally be provided by the NHSRCL for the accommodation of the Contractor or any of his staff employed on the work. In exceptional cases where accommodation is provided to the Contractor at the NHSRCL's discretion, recoveries shall be made at such rates as may be fixed by the NHSRCL for the full rent of the buildings and equipments therein as well as charges for electric current, water supply and conservancy.
- 25. Labour Camps : (GCC Clause 59 (1))** The Contractor shall at his own expense make adequate arrangements for the housing, supply of drinking water and provision of latrines and urinals for his staff and workmen, directly or through the petty contractors or sub-contractors and for temporary creche (Bal-mandir) where 50 or more women are employed at a time. Suitable sites on NHSRCL land, if available, may be allotted to the Contractor for the erection of labour camps, either free of charge or on such terms and conditions that may be prescribed by the NHSRCL. All camp sites shall be maintained in clean and sanitary conditions by the Contractor at his own cost.

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26. Compliance To Rules For Employment Of Labour :(GCC Clause 59(2)) The Contractor(s) shall conform to all laws, bye-laws rules and regulations for the time being in force pertaining to the employment of local or imported labour and shall take all necessary precautions to ensure and preserve the health and safety of all staff employed directly or through petty Contractors or Subcontractors on the works.

27. Preservation Of Peace :(GCC Clause 59(3)) The Contractor shall take requisite precautions and use his best endeavours to prevent any riotous or unlawful behaviour by or amongst his workmen and other employed directly or through the petty contractors or sub-contractors on the works and for the preservation of peace and protection of the inhabitants and security of property in the neighbourhood of the works. In the event of the NHSRCL requiring the maintenance of a special Police Force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the Contractor and if paid by the NHSRCL shall be recoverable from the Contractor.

28. Sanitary Arrangements:(GCC Clause 59(4))

The Contractor shall obey all sanitary rules and carry out all sanitary measures that may from time to time be prescribed by the NHSRCL Medical Authority and permit inspection of all sanitary arrangements at all times by the Engineer, the Engineer's Representative or the Medical Staff of the NHSRCL. Should the Contractor fail to make the Indian Railways Standard General Conditions of Contract as On 30th June 2014 Page 52 adequate sanitary arrangements, these will be provided by the NHSRCL and the cost therefore recovered from the Contractor.

29. Outbreak Of Infectious Disease :(GCC Clause 59(5)) The Contractor shall remove from his camp such labour and their families as refuse protective inoculation and vaccination when called upon to do so by the Engineer or the Engineer's Representative on the advice of the NHSRCL, Medical Authority. Should Cholera, plague, or other infectious disease break out, the Contractor shall burn the huts, beddings, clothes and other belongings of or used by the infected parties and promptly erect new huts on healthy sites as required by the Engineer, failing which within the time specified in the Engineer's requisition, the work may be done by the NHSRCL and the cost therefore recovered from the Contractor.

30. Treatment Of Contractor's Staff In Railway Hospitals : (GCC Clause 59(6)) The Contractor and his staff, other than labourers and their families requiring medical aid from the Railway Hospital and dispensaries will be treated as private patients and charged accordingly. The Contractors' labourers and their Families will be granted free treatment in Railway Hospitals and dispensaries where no other Hospitals or dispensaries are available provided the Contractor pays the cost of medicines, dressing and diet money according to the normal scale and additional charges for special examinations such as pathological and bacteriological examination, X-Ray, etc. and for surgical operation.

31. Medical Facilities At Site : (GCC Clause 59(7)) The Contractor shall provide medical facilities at the site as may be prescribed by the Engineer on the advice of the Railway Medical Authority in relation to the strength of the Contractor's resident staff and workmen.

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- 32. Use Of Intoxicants : (GCC Clause 59(8))** The sale of ardent spirits or other intoxicating beverages upon the work or in any of the buildings, encampments or tenements owned, occupied by or within the control of the Contractor or any of his employees shall be forbidden and the Contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.
- 33. Restrictions On The Employment Of Retired Engineers Of Railway Services Within Two Years Of Their Retirement : (GCC Clause 59(10))** The Contractor shall not, if he is a retired Government Engineer of Gazetted rank, himself engage in or employ or associate a retired Government Engineer of Gazetted rank, who has not completed two years from the date of retirement, in connection with this contract in any manner whatsoever without obtaining prior permission of the President and if the Contractor is found to have contravened this provision it will constitute a breach of contract and administration will be entitled to terminate the contract at the risk and cost of the contractor and forfeit his Security Deposit.
- 34. Non-Employment Of Labourers Below The Age Of 15 :(GCC Clause 60(1))** The Contractor shall not employ children below the age of 15 as labourers directly or through petty contractors or subcontractors for the execution of work.
- 35. Medical Certificate Of Fitness For Labour : (GCC Clause 60(2))** It is agreed that the contractor shall not employ a person above 15 and below 19 years of age for the purpose of execution of work under the contract unless a medical certificate of fitness in the prescribed form (Proforma at Annexure-VIII) granted to him by a certifying surgeon certifying that he is fit to work as an adult, is obtained and kept in the custody of the contractor or a person nominated by him in this behalf and the person carries with him, while at work; a token giving a reference to such certificate. It is further agreed that the responsibility for having the adolescent examined medically at the time of appointment or periodically till he attains the age of 19 years shall devolve entirely on the contractor and all the expenses to be incurred on this account shall be Indian Railways Standard General Conditions Of Contract As On 30th June 2014 Page 53 borne by him and no fee shall be charged from the adolescent or his parent for such medical examination.
- 36. Period Of Validity Of Medical Fitness Certificate : (GCC Clause 60(3))** A certificate of fitness granted or renewed for the above said purposes shall be valid only for a period of one year at a time. The certifying surgeon shall revoke a certificate granted or renewed if in his opinion the holder of it is, no longer fit for work in the capacity stated therein. Where a certifying surgeon refuses to grant or renew a certificate or revoke a certificate, he shall, if so required by the person concerned, state his reasons in writing for doing so.
- 37. Medical Re-Examination Of Labourer : (GCC Clause 60(4))** Where any official appointed in this behalf by the Ministry of Labour is of the opinion that any person employed in connection with the execution of any work under this contract in the age group 15 to 19 years is without a certificate of fitness or is having a certificate of fitness but no longer fit to work in the capacity stated in the certificate, he may serve on the Contractor, or on the person nominated by him in this regard, a notice requiring that such persons shall be examined by a certifying surgeon and such person shall not if the concerned official so directs, be employed or permitted to do any work under this contract unless he has been medically examined and certified

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that he has been granted a certificate of fitness or a fresh certificate of fitness, as the case may be.

EXPLANATIONS : (1) Only Qualified Medical Practitioners can be appointed as "Certifying Surgeons" and the term "Qualified Medical Practitioners" means a person holding a qualification granted by an authority specified in the Schedule to the Indian Medical Degrees Act, 1916 (VII to 1916) or in the Schedule to the Indian Medical Council Act, 1933 (XXVII) of 1933. (2) The Certifying surgeon may be a medical officer in the service of State or Municipal Corporation.

38. The NHSRCL will not acquire any land for the purpose of movement of vehicle of the contractor's in doing earthwork.
39. All the available vehicles and equipment of the contractor can be drafted by the NHSRCL Administration in case of accidents/natural calamities involving human lives. The payment for such drafting shall be made according to the rates as shall be fixed by the Engineer. However, if the contractor is not satisfied with the decision of the Engineer in this respect he may appeal to the chief engineer within 30 days of getting the decision of the engineer, supported by analysis of the rates claimed. The Chief Engineer's decision after hearing both the parties in the matter would be final and binding on the Contractor and the NHSRCL.
40. **Arbitration clause:** - Modified Clause 64 of General Condition of contract -2014 for implementation of Arbitration and Conciliation (Amendment) Act-2015 shall be applicable.
41. The payment of contractor shall be made through Electronic Fund transfer (EFT) or Electronic Clearing System (ECS) for which Parties tendering should provide the details of bank account in line with RBI guidelines for the same. These details will be include Bank Name, Branch name and address, Account type, Bank Account No. and Bank and Branch code as appearing in the MICR cheque issued by the bank. The tenderer(s) should also attach certificate from their bank certifying the correctness of all the above mentioned information. If the tender(s) is maintaining account with bank branches having no IFSC code, may get their account transferred to bank branches having IFSC code so that payment can be made through NEFT/RTGS mode.

The above details is required to be submitted by the contractors before signing of contract agreement in the format provided in **Annexure 'A'**.

Address: -
.....

Signature of Tenderer

Date: -


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Annexure 'A'

**FORMATE FOR PAYMENT THROUGH "NEFT/RTGS" SYSTEM
CONTRACTOR/VENDOR PAYMENT**

Sr. No.	Name of Party	Detail given by contractor/Vender
1	Work/Supply order No.	
2	Date	
3	Name of Bank	
4	Address	
5	Name of Bank Branch	
6	Address	
7	Place	
8	Account Number	
9	MICR Code	
10	IFS Code	
11	Mobile No (for SMS)	
12	E-Mail ID	
13	PAN Number	

Note:-

-Please attached Xerox copy of 1st page of pass book (Containing account number, name of account holder, branch name) and Xerox of one blank cheque (for IFS code) to ensure the prompt payment.

-Form should be filling up in two copies.

AUTHORISED SIGNATURE


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Goods & Service Tax (GST) Act – 2017.

1. In terms of Railway Board's letter No. 2017/CE-I/CT/4/GST dated 23.06.2017

"Subsequent to the enactment of GST Act, Board (ME) has approved modification to para (a) of Clause 6, Part-I of Indian Railways Standard General Conditions of Contract, July 2014. The revised para (a) of clause 6 shall be read as under: -

Care in Submission of Tenders:

(i) Before submitting a tender, the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the rates he enters in the tender forms are adequate and all-inclusive to accord with the provisions in Clause – 37 of the Standard General Conditions of Contract for the completion of works to the entire satisfaction of the Engineer.

(ii) Tenderers will examine the various provision of the Central Goods and Services Tax Act, 2017(CGST)/Integrated Goods and Services Tax Act, 2017(IGST)/Union Territory Goods and Services Tax Act, 2017(UTGST)/respective state's State Goods and Services Tax Act(SGST) also, as notified by Central/State Govt. and as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefit of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.

(iii) The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to NHSRCL immediately after the award of contract, without which no payment shall be released to the contractor. The contractor shall be responsible for deposition of applicable GST to the concerned authority.

(iv) In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/SGST Act, the NHSRCL shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.

2. In terms of Railway Board's letter No. 2016/CE-I/CT/12/GST/Pt.I dated 29.6.17

"On Indian Railways presently 'work executed by contractor' is recorded in measurement books by railway, duly accepted by contractor. Railway prepares 'on account/final contract certificate' for the payable amount based on the work executed and the rates quoted by the contractor duly deducting various statutory taxes like – work contract tax/service tax/royalties/income tax etc. as per applicable rates. Further, railways deposit the statutory deductions themselves to the concerned authorities.

With GST Act in force, it will be the responsibility of service providers (i.e. contractors) to submit the invoice (bill) duly segregating the GST component from the Gross amount of work executed.

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Railways are therefore advised to follow the procedure as mentioned below while dealing with contractor's payment, once GST is applicable.:

(A)

- (i) All works contracts are to be provided with goods/service code based on the type of contract. In case contract consists of both goods & service, then interpretation regarding nature of contract shall be done as per clause 8, Chapter III of CGST Act, 2017. The goods/service code is notified by Ministry of Finance and can be downloaded from the website www.cbec.gov.in.
- (ii) The 'on account/final contract certificate' shall be prepared by the Railway on the basis of quantity of work executed and agreemental rates, duly segregating the GST component as detailed in para (iii) below.
- (iii) Since the agreemental rates of contracts are inclusive of all taxes as per clause 37 of GCC 2014, the calculation of 'Gross amount of work executed'. Amount of work executed excluding GST amount' and 'GST amount' in the 'on account/final contract certificate 'shall be done as under:-

Let Z = Gross amount of work executed on the basis of quantum of work executed and agreemental rates.

X = Amount of work executed excluding GST amount.

Y = GST amount as per applicable GST rate for that goods/service code.

R = Percentage rate of GST for that goods/service code.

Then, $Z = X+Y$, $Y=X *R/100$.

- (iv) Percentage rate of GST for various types of goods/services as finalized by GST council can be downloaded from the website www.cbec.gov.in.

(B)

- (i) Once the 'on account/final contract certificate' is prepared by NHRCL and communicated to contractor, the contractor shall submit invoice (bill) on his Letter head duly segregating the 'Amount of work executed excluding GST amount' and 'GST amount' (i.e. "X" & "Y" as mentioned in para 3(A)(iii) (above) along with Invoice No. (bill No.) and all other details required under GST Act. The sample GST compliant invoice is annexed herewith.
- (ii) In case contractor is liable to be registered under GST Act, NHRCL shall pay to the Contractor 'Gross amount of work executed' (i.e. "Z" as mentioned in para 3A (III) above) duly deducting all other leviable taxes like I/Tax, labour cess, royalty etc. as applicable. Contractor shall be liable to pay 'GST amount' to respective authority himself. Whereas, NHRCL shall deposit all other taxes deducted to concerned authority as is being done presently.
- (iii) In case contractor is not liable to be registered under GST Act, contractor shall be paid 'Amount of work executed excluding GST amount' (i.e. "X" as mentioned in para 3A (iii) above) duly deducting all other leviable taxes like I/Tax, labour

cess, royalty etc. as applicable. NHSRCL shall deposit 'GST amount' as well as all other taxes deducted to concerned authority.

- (iv) In case any need arises to modify the Invoice (Bill) due to any reason, contractor shall submit amended fresh invoice for processing the payment.

ANNEXURE

1	Supplier Name
2	Supplier GSTIN
3	Invoice No.
4	Invoice Issue Date
5	Total Value
6	Taxable Value
7	Goods A/C HSN, Service Accounting Code.
8	Goods and Services Description
9	Unit Qty. Code
10	Quantity
11	Rate
12	Whether eligible for ITC – Partial/Full/NIL
13	IGST Rate
14	IGST Charged Amount
15	CGST Rate
16	CGST Charged Amount
17	SGST/UGST Rate
18	SGST Charged Amount
19	Cess Rate
20	Cess Charged Amount
21	Name/Recipient of Service / Goods
22	Place of Supply
23	Recipient GSTIN
24	Tax Payable on Reverse Charge Basis(Y/N)
25	TDS.


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PRICE VARIATION CLAUSE

1. In terms of Rly Bds letters No 2007/CE-I/CT/18 Pt 19 Dt 14.12.2012 circulated vide PCE-CCG's letter No..W/118/0 Vol. V (W6) dated 11-1-2013, in supersession to all previous instructions on the subject, the Price Variation Clause shall be **applicable only for Contracts of value (Contract Agreement) Rs.50 lakhs and more, irrespective of the contract completion period. (Am mended wide Rly Bds letter No 2007/CE-I/CT/18/pt.19 (FTS-8798) Dtd 15.10.14 circulated wide PCE/CCG, s letter No w/118/0/Vol VII (W 6) Dtd 17.12.14)**

1. If required, the percentages of various components, as detailed in Para 46A.5 of Price Variation Clause in GC C may be varied by the concerned SA Grade Officer in consultation with the concerned FA&CAO, keeping in view the special features and complexities of the work involved.

2. Clause 46A - Price Variation Clause to the General Conditions of Contract, as detailed below along with associated instructions mentioned herein, shall be applicable with prospective effect.

Clause 46A - Price Variation Clause:

46A.1. Price Variation Clause (PVC) shall be applicable only for **Contracts** of value as prescribed by the Ministry of Railway through instruction/circulars issued from time to time and irrespective of the contract completion period. **Variation in quantities shall not be taken in to account for applicability of PVC in the contract.** Materials supplied free of cost by Railway to the contractors shall fall outside the purview of Price Variation Clause. If, in any case, accepted offer includes some specific payment to be made to consultants or some material supplied by Railway free or at fixed rate, such payments shall be excluded from the gross value of the work for the purpose of payment/recovery of price variation.

The applicability of Price Variation Clause shall be based on original contract values

(Authority: - Rly Bds letter No 2007/CE-I/CT/18/pt.19 (FTS-8798) Dtd 15.10.14 circulated wide PCE/CCG, s letter No w/118/0/Vol VII (W 6) Dtd 17.12.14)

46A.2. **The Base Month for "Price Variation Clause" shall** be taken as month of opening of tender including extensions, if any, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following the month of opening of tender. The Price Variation shall be based on the average Price Index of the quarter under consideration.

46A.3. Rates accepted by Railway "Administration shall hold good till completion of work and no additional individual claim shall be admissible on account of fluctuations in market rates, increase in taxes/any other levies/tolls etc. except that payment/recovery for overall market situation shall be made as per Price Variation Clause given hereunder.

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46A.4. Adjustment for variation in prices of material, labour, fuel, explosives, detonators, steel, concreting, ferrous, non-ferrous, insulators, zinc and cement shall be determined in the manner prescribed.

46A.5. Components of various items in a contract on which variation in prices be admissible, shall be Material, Labour, Fuel, Explosives, Detonators, Steel, Cement & Lime Concreting, Ferrous, Non-ferrous, Insulator, Zinc, Erection etc. **However, for fixed components, no price variation shall be admissible.**

46A.6. The Percentages of labour components, material component, fuel component etc., in various types of Engineering Works shall be as under:

Component	Percentage	Component	Percentage
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(A)

(B) Earthwork Contracts

Labour Component	50%	Other Material Components	15%
Fuel Component	20%	Fixed Component *	15%

(C)

(D) Ballast and Quarry Products Contracts:

Labour Component	55%	Other Material Components	15%
Fuel Component	15%	Fixed Component *	15%

(E)

(F) Tunnelling Contracts:

Labour Component	45%	Detonators Components	5%
Fuel Component	15%	Other Material Components	5%
Explosive Component	15%	Fixed Component *	15%

(G)

(H) Other Work Contracts:

Labour Component	30%	Fuel Components	15%
Material Component	40%	Fixed Component *	15%

* It shall not be considered for any price variation.

(Authority: Railway Board's Letter No 2007/CE-I/CT/18 Pt 19 Dt 14.12.2012)

46A.7 In terms of Rly Board, s letter No 2007/CE-I/CT/18/Pt.13 Dtd. 02.05.14 Circulated vide PCE/CCG, S letter No W/118/0 Vol VI (W 6) Dtd. 22.05.14 the clause No 46A. 7 (Sab clause of PVC) to GCC has been amended through Addendum& corrigendum slip No 6 to GCC, July 2013 which are as under:

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The Amount of variation prices in several components (labour material etc.) shall be worked out by the following formula:

$$\begin{aligned} \text{LB} \quad (i) \quad L &= \frac{W \times (LQ - LB)}{100} \times \frac{LC}{100} \\ (ii) \quad M &= \frac{W \times (MQ - MB)}{MB} \times \frac{MC}{100} \\ F &= \frac{W \times (FQ - FB)}{FB} \times \frac{FC}{100} \\ (iii) \quad E &= \frac{W \times (EQ - EB)}{EB} \times \frac{EC}{100} \\ (iv) \quad D &= \frac{W \times (DQ - DB)}{DB} \times \frac{DC}{100} \\ (v) \quad S &= SW \times (SQ - SB) \\ (vi) \quad C &= CV \times (CQ - CB) / CB \end{aligned}$$

For Railway Electrification Works:

$$\begin{aligned} (viii) \quad T &= [(CS - Co) / Co \times 0.4136] \times TC \\ (ix) \quad R &= [(RT - Ro) / Ro + (ZT - Zo) / Zo \times 0.06] \times RC \\ (x) \quad N &= [(PT - Po) / Po] \times NC \\ (xi) \quad Z &= [(ZT - Zo) / Zo] \times ZC \\ (xii) \quad I &= [(IT - Io) / IT] \times 85 \end{aligned}$$

Where,

- L Amount of price variation in Labour.
- M Amount of price variation in Material
- F Amount of price variation in Fuel.
- E Amount of price variation in Explosives.
- D Amount of price variation in Detonators
- S Amount of price variation in Steel.
- C Amount of price variation in Cement.


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- T Amount of price variation in Concreting.
- R Amount of price variation in Ferrous Items.
- N Amount of price variation in Non-Ferrous.
- Z Amount of price variation in Zinc.
- I Amount of price variation in Insulator.
- Lc % of Labour Component.
- Mc % of Material Component.
- Fc % of Fuel Component.
- Ec % of Explosive Component.
- Dc % of Detonators Component.
- Tc % of Concreting Component.
- Rc % of Ferrous Component.
- Nc % of Non-Ferrous Component.
- Zc % of Zinc Component.
- W Gross value of work done by contractor as per on-account bill(s) excluding cost of materials supplied by **Railway at fixed price, minus the price values of cement and steel**. This will also exclude specific payment, if any, to be made to the consultants engaged by contractors (such payment will be indicated in the contractor's offer).
- LB Consumer Price Index Number for Industrial Workers - All India - Published in RBI Bulletin for the **base period**
- Lq Consumer Price Index Number for Industrial Workers - All India - Published in RBI Bulletin for the **average price index of the 3 months of the quarter under consideration**.
- MB Index Number of Wholesale Prices - By Groups and Sub-groups - All commodities - as published in the RBI Bulletin for **the base period**.
- MQ Index Number of Wholesale Prices - By Groups and Sub-groups - All commodities - as published in the RBI Bulletin for the **average price index of the 3 months of the quarter under consideration**.
- FB Index Number of Wholesale Prices - By Groups and Sub-groups for Fuel and Power as published in the RBI Bulletin for **the base period**.


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- FQ Index Number of Wholesale Prices - By Groups and Sub-groups for Fuel and Power as published in the RBI Bulletin for **average price index of the 3 months of the quarter under consideration.**
- EB Cost of Explosives as fixed by DGS&D in the relevant rate contract of the firm from whom purchase of explosives are made by the contractor for the **base period.**
- EQ Cost of Explosives as fixed by DGS&D in the relevant rate contract of the firm from whom purchase of explosives are made by the contractor for the **average price index of the 3 months of the quarter under consideration.**
- DB Cost of detonators as fixed by DGS&D in the relevant rate contract of the firm from whom purchase of detonators are made by the contractor for the **base period.**
- DQ Cost of detonators as fixed by DGS&D in the relevant rate contract of the firm from whom purchase of detonators are made by the contractor for the **average price index of the 3 months of the quarter under consideration.**
- Sw Weight of steel in tonnes supplied by the contractor as per the '**on-account' bill for the month under consideration.**
- Sq SAIL's (Steel Authority of India Limited) ex-works price plus Excise Duty thereof (in rupees per tonne) for the relevant category of steel supplied by the contractor as prevailing on the first day of the month in which the steel was purchased by the contractor (or) as prevailing on the first day of the month in which steel was brought to the site by the **contractor whichever is lower.**

In case, there is no notification by SAIL for the month under Consideration, the price of steel, as notified in the last available month shall be taken.

- SB SAIL's (ex-works price plus Excise Duty thereof (in rupees per tonne) for the relevant category of steel supplied by the contractor as prevailing **on the first day of the month in which the tender was opened.**

In case, there is no notification by SAIL for the month under Consideration, the price of steel, as notified in the last available month shall be taken.

- Cv Value of cement supplied by contractor as **per on account bill in the quarter under consideration.**
- CB Index No. of Wholesale Price of sub-group (of Cement & Lime) as published in RBI bulletin for **the base period.**
- CQ Index No. of Wholesale Price of sub-group (of Cement & Lime) as published in RBI bulletin for the **average price index of the 3 months of the quarter under consideration.**

- Cs RBI wholesale price index for cement & Lime for the month which is six months prior to date **of costing of foundation.**
- Co RBI wholesale price index for Cement & Lime for the month which is One month prior to **date of opening of tender.**
- RT IEEMA price index for Iron & Steel for the month which is two months prior to date **of inspection of material.**
- Ro IEEMA price index for Iron & Steel for the month which is One month prior to **date of opening of tender.**
- PT IEEMA price for Copper wire bar for the month which is two months prior to date of **inspection of material.**
- Po IEEMA price for Copper wire bar for the month which is **One month prior to date of opening of tender.**
- ZT IEEMA price for Zinc for the month which is **two months prior to date of inspection of material.**
- Zo IEEMA price for Zinc for the month which is **One month prior to date of opening of tender.**
- IT RBI Wholesale Price Index for Structural Clay Products for the month which is two months prior to date of inspection of material.
- Io RBI Wholesale Price Index for Structural Clay Products for the month which is **One month prior to date of opening of tender.**

(Authority: Railway Board's circular no.2007/CE-I/CT/18)/Pt.13 dated 02.05.2014)

46A.8. The demands for escalation of cost shall be allowed on the basis of provisional indices made available by Reserves Bank of India. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.

46A.9. Relevant categories of steel for the purpose of operating Price Variation formula, as mentioned in this Clause, based on **SAIL's** ex-works price plus Excise Duty thereof, shall be as under:

Sr. No.	Category of steel supplied in Railway work	Category of steel produced by SAIL whose Ex-works price plus Excise Duty would be adopted to determine price variation.
1	Reinforcement bars and other rounds	TMT 8mm IS 1786 Fe 415/Fe 500
2	All types and sizes of angles.	Angle 65 x 65 x 6mm IS 2062 E 250 A SK
3	All types and sizes of plates.	PM Plates above 10-20 mm IS 2062 E250A SK

4	All types and sizes of channels and joists.	Channels 200 x 75 mm IS 2062 E250A SK
5	Any other section of steel not covered in the above categories and excluding HTS.	Average of price for the 3 categories covered under SL 1, 2 & 3 above.

46A.10. Price Variation During Extended Period of Contract.

The price adjustment as worked out above i.e. either increase or decrease shall be applicable upto the stipulated date of completion of work including the extended period of completion where such extension has been granted under Clause 17-A of the General Conditions of Contract. However, where extension of time has been granted due to contractor's failure under clause 17-B of the General Conditions of Contract, price adjustment shall be done as follows:

- a) In case the indices increase above the indices applicable to the last month of original completion period or the extended period under Clause 17-A, ***the price adjustment for the period of extension granted under Clause 17-B shall be limited to the amount payable as per the Indices applicable to the last month of the original completion period or the extended period under Clause 17-A of the General Conditions of Contract; as the case may be.***
- b) In case the indices fall below the indices applicable to the last month of original/extended period of completion under Clause 17-A, as the case may be; then the lower indices shall be adopted for the price adjustment for the period of extension under Clause 17-B of the General Conditions of Contract. ***(Authority: Railway Board's letter No 2007/CE-I/CT/18 Pt 19 Dt 14.12.2012)***

Address: -

Signature of Tenderer

.....

Date: -


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CONDITIONS FOR USSOR-2011 ITEMS OF PART- I
SPECIFICATION OF CEMENT

(A)The cement used shall be any of the following and type selected should be appropriate for the intended use.

(i)33 Grade Ordinary Portland Cement conforming to IS:269

(ii)43 Grade Ordinary Portland Cement conforming to IS:8112

(iii)53 Grade Ordinary Portland Cement conforming to IS:12269

(iv)Rapid hardening Portland Cement conforming to IS:8041

(v)Portland slag cement conforming to IS:455

(vi)Portland pozzolana Cement (Fly ash based) conforming to IS:1489(Part-1)

(vii)Portland pozzolana Cement (calcined clay based) conforming to IS:1489(Part-2)

(viii)Hydrophobic Cement Conforming to IS:8043

(ix)Low heat Portland cement conforming to IS:12600

(x)Sulphate resisting Portland cement conforming to IS:12330

Note:-Portland pozzolana Cement shall not be used for PSC Works.

(B) The cement shall be packed in jute sacking bags conforming to IS:2580-1982, double hessian bituminised (CRI type) or woven HDPE conforming to IS:11652-1986 woven polypropylene conforming to IS:11653-1986, jute synthetic union conforming to IS:12174-1987, or any other approved composite bags, bearing the manufacturers name or his registered trade mark if any, and grade and type of cement.

(C)Every delivery of cement shall be accompanied by a producer's certificate confirming that the supplied cement conforms to relevant specification. These certificates shall be endorsed to the Engineer for his record. Certified copy of the same shall be submitted to NHSRCL office along with running bills/final bills.

(D)Every consignment of cement must have identification marks on packages indicating date of manufacture and grade and type of cement. Cement when brought to work shall not be more than 6 weeks old from the date of manufacture. In case due to some reason it is not possible to use the cement within three months then it should be ensured that older lot is used in the lean concrete or other unimportant items of work. Effective precautionary measures shall be taken to eliminate dust nuisance during loading or transferring cement. The procurement of cement shall be planned by the contractor this does not affect the progress of work.

(E)Cement in bags shall be stored and stacked in a shed which is dry, leak proof and as moisture proof as possible. Flooring of the shed shall consist of the two layers of dry bricks laid on well consolidated earth to avoid contact of cement bags with the floor. Stacking shall be done about 150 to 200mm clear above the floor using wooden planks, old wooden sleepers or scrap GI sheets. Cement bags shall be stacked at least 450mm clear of the walls and in rows of two bags leaving in a space of at-least 600mm between two consecutive rows. In each row the cement bags shall be kept close together so as to reduce air circulation. Stacking shall not be more than 10 bags high to avoid lumping under pressure. In stacks more than eight bags high, the cement bags shall be arranged in header and stretcher fashion, i.e. alternately lengthwise and crosswise so as to tie the stacks together and minimize the danger of toppling over.

(F) Different type of cement shall be stacked and stored separately. Cement bags shall be stacked in a manner to facilitate their removal and use in the order in which they are received. For extra safety during monsoon, or when cement is expected to be stored for an unusually long period, each stack shall be completely enclosed by a water proofing membrane, such as polyethylene/tarpauline, which shall cover the top of the stack. Care shall be taken to see that the water proofing membrane is not damaged at any time during use. Cement which is set or partially set should on no account be used. Storage of cement at the worksite shall be at the contractor's expense and risk. Any damage occurring to cement due to faulty storage in contractor's shed or on account of negligence on his part shall be the liability of the contractor.

(G) After receipt of each lot of cement at go down a sample of cement at the direction of Engineer in charge shall be tested at contractor's own cost for (a) Fineness, (b) Soundness, (c) Setting time (initial and Final), (d) Compressive strength & (e) consistency of standard cement paste as prescribed in IS code) IS:4031 Part-II, Part-III, Part-V & Part-VI for each lot or every 50 tonnes or part thereof. Only on receipt of satisfactory certificates this cement shall be allowed to be used on the work. Certified copy of the same shall be submitted to NHSRCL office along with running bills/final bills.

(H) Cement shall be procured/purchased from cement factories/authorized dealers/retailers from various popular brands e.g. **ACC, Shriram Cement, JK Cement, Ultratech**, The contractor shall have to submit the cash memo along with the lot of cement purchased from the various cement factories/authorized dealers/retailers to Engineer in Charge in token proof of purchase of cement from reputed cement factories/authorized dealers/retailers. No cement shall be accepted by the Engineer in Charge without cash memo. Certified copy of the same shall be submitted to NHSRCL along with running bills/final bills.

(I) Although cement payment is in MT as per item of tender, total quantities so paid shall be limited to quantity actually used in work, subject to further not exceeding the quantity laid down in Indian Railway Unified Standard Specifications (Works and Materials) Vol. I & II whichever is less.

(J) No payment shall be made for the cement used in works rejected by Engineer. All empty bags shall be taken away by the contractor after use of cement and cost of empty cement bags shall not form part of quoted rates against the item of cement.

(K) Cement consumption register shall be meticulously maintained giving quantity of work done/consumption of cement of each day.

(L) Cement bags left after completion of work shall be taken away by the contractor and Railway shall not make any payment against these bags.


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SPECIFICATION OF STEEL ITEMS
REINFORCEMENT STEEL (TMT BARS) AND STRUCTURAL STEEL

(A) All Reinforcement Steel (TMT Bars) and structural Steel shall be procured as per specifications mentioned in BIS's documents-IS:1786 and IS:2062 respectively. Independent tests shall be conducted, wherever required, to ensure that the materials procured conform to the specifications.

(B) Steel shall be procured only from those firms, which are established, reliable, indigenous and Primary producers of steel, having integrated steel plants (ISP), using iron ore as the basic raw material and having in-house iron rolling facilities, following by production of liquid steel and crude steel, as per Ministry of Steel's guidelines e.g., "SAIL/TISCO/JINDAL/RINL/ ESSAR / IISCO/SRMB/JINDAL PANTHER".

(C) However, only certain isolated sections of structural steel, not being rolled by ISPs, can be procured from the authorized re-rollers of ISPs or authorized licensee of BIS having traceability system and who use billets produced by ISPs.

(D) The steel procured shall be reasonably free from cracks, surface flaws, laminations, rough and imperfect edges and all other harmful defects. Steel sections, shall be free from excessive rust, scaling and pitting and shall be well protected. The decision of the Engineer regarding rejecting any steel section on account of any of the above defects shall be final and binding.

(E) Structural steel work shall conform to the requirement as specified in Indian Railway Unified Standard Specifications (Works and Materials) Vol. I & II.

(F) Necessary purchase bill along with test certificate for steel shall be obtained and submitted to the Engineer in Charge. Steel without the test certificate from approved laboratory/Engineering college shall not be used in the work. Certified copy of the same shall be submitted to Divisional Office along with running bills/final bills. Steel shall be tested for Tensile strength and bend test as per IS:1599 as specified in Indian Railway Unified Standard Specifications (Works and Materials) Vol. I & II.

(G) Quantity for this item shall be calculated as per nominal weight of steel section for the length actually used in the work. No payment will be made for the wastage and the contractor will be allowed to take away the scrap and excess steel away from site.

(H) The contractor shall be responsible for getting the measurement of steel entered in to steel register and signed by the Engineer in charge of the work before concreting is done to avoid dispute regarding quantity of steel used in the work.

(I) The rates quoted for this item is deemed to be inclusive of the cost of binding wire and no separate payment shall be admissible for the same.

(J) The steel shall be kept by the contractor under his custody at the site of work and Railway will not be responsible for any theft thereof.

(K) The quantity so payable under relevant item shall be restricted to the quantity as per approved plan/drawing and decision of the Engineer in Charge in this regard shall be final and binding upon the contractor.

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SPECIAL CONDITIONS & SPECIFICATION OF CONTRACT PART- II
(SPECIFICATIONS AND SCOPE OF WORK)

Name of work:- Construction of RCC Overhead tank of capacity of 2.25 lacs litres along-with one RCC sump of capacity of 1.00 lac litres at Vadodara yard or nearby area in connection with Mumbai-Ahmedabad High Speed Railway Project.

This work broadly includes the following works at Vadodara yard area.

- i) Preparing RCC drawings & design of tank.
- ii) Execution of plate load test or any other test required.
- iii) Construction of one no. 2.25 lakh litre capacity RCC overhead tank on 20m high RCC staging.
- iv) Design & construction of 1 no. of RCC sump of 1.00 lakh litre capacity.
- v) Dismantling of existing dilapidate tank if required.
- vi) All plumbing and pipe line related works.

SPECIAL CONDITION FOR CONSTRUCTION OF 2.25 LAC LITRE CAPACITY RCC OVERHEAD TANK WITH ONE RCC SUMP (NS/1 & 2 OF SCHEDULE-A)

1. The tenderers are expected to have visited the site to assess the nature of the soil, depth and variation of the sub soil water and the problems that are likely to be encountered in construction or /are likely to affect the design before filling in the rates.

THE TENDERER IS REQUESTED TO SUBMIT HIS CREDENTIALS REGARDING HIS PAST EXPERIENCE FOR EXECUTING SIMILAR NATURE OF WORKS.

2. Drawings to be submitted by the contractors. The following drawings shall be submitted by the contractor


- a. With tender a dimensioned sketch showing general arrangement of the various components of the structure.

- b. After acceptance of the tender the contractor shall submit 8 copies of the following sets of drawings within 15 days from the date of receipt of acceptance letter:

- i. General sketch showing dimensions of the various components of the structure.

- ii. A general detailed and dimensioned sketch of the foundation showing all the details of the reinforcement the details of the foundation slab, raft and columns should also been given separately and enlarged scale.

- iii. A detailed sketch of the columns, with details of reinforcement and their joints with the foundation, bracing and the ring beam.


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- iv. A detailed sketch of the bottom and top ring beams with details of reinforcement
 - v. A detailed sketch of the bracings, with details reinforcements and its joints with the columns or of the shaft
 - vi. A detailed sketch of the Tank body with details of reinforcement. The details of the bottom dome, conical dome, vertical wall and top dome, in case of into, tanks should be given separately on an enlarged scale that each details clearly understandable. In other cases, also the details of various details components should also be given separately.
3. The following details will be given in the detailed drawings referred to above:
- a. Detailed dimension of each component and section of the structures
 - b. Details of reinforcement which shall include the position of diameter and spacing of bars in each component or section the position and the details of curtailment and bonding of bars i.e. overlapping of bars and length of bars.
 - c. The tender should use M-30 concrete mix for the entire RCC component unless otherwise specified the contractors should carefully note that no drawings or drawings with incomplete details will be accepted and the contractor shall be responsible for any delay or loss of time in correspondence between him and the engineer on this account.
4. All the eight sets of drawings to be submitted by the contractor shall be properly bound in separate cover. In two sets out of the eight the drawings shall be pasted on cloth on a good quality so that they can withstand frequent and rough use.
5. The contractor shall submit detailed design calculation along with drawings as mentioned in clause -3 (b) above duly checked and certified only by recognized engineer college. In the calculation references consulted or where ever any formulas on tables are used should be mentioned in the design. The work shall be started only after approval of the drawing by NHSRCL.
6. COMPLETION DRAWINGS

After the completion of works in all respects the contractor shall submit 5 sets of drawings containing all the details maintained in clause 2(b) and showing the structure as it is actually constructed. These sets will also be bond as in clause 4 of this schedule.

For furnishing the completion drawings it shall be necessary that the contractor keeps a detailed record of the progress of work duly signed by NHSRCL's representative and prepares the drawings when the work is in progress.


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7. List of the samples to be submitted by the contractor without demanding any cost within a fortnight from the date or order to the contractor to start the work.
- Shingle/Stone ballast (Various = 0.1m³ graded)
 - Coarse sand = 0.1m³
 - Rubber insertion = 0.5m²
 - Binding wire = 1.00m
 - Steel (along with brand) = 1.00m long 3 pieces of each size of bars
 - Nuts and bolts = 5.00 nos.
 - Any components which is to be mixed with cement
8. The tank on completion shall be water tight and free from any defects such as cracks or unsightly patches and shall be tested by filling in with water to full supply level and maintaining the level for three (3) days. The tank shall be deemed to have stood the water tightness test if the fall in the level of water does not exceed 6 mm in 24 hrs .and there is no sweating or patches of dampness on the outer surface of the tank. The contractor shall have to make his own arrangements of water for testing. Payment of tenderer shall be made on completion of this test only.
- If at any time within twelve months from the date of handing over of the tank for use, any defect such as cracks, sweating and patches of dampness or leakage is observed, contractor shall rectify all such defects at his own cost. The work on the rectification of such defects shall have to be started within ten days from the receipt of information from the Engineer by the Contractor.
- A final test shall be held at the end of the maintenance period before final clearance certificate is given by the Engineer. The contractor shall make his own arrangement for the filling up the tank for purpose of testing and shall bear full expenses on this account
9. The contractors responsibility shall however not end till the maintenance for a period of twelve months from the date of handing over or one complete rainy season, whichever is later have passed.

SPECIFICATIONS PART-A

1. GENERAL

Limits of contract: The contract shall be deemed to commence from the date of receipt of acceptance letter and shall be deemed to be finally completed when all the work comprised there is have been satisfactorily completed, tested and handed over to the NHSRCL and shall have successfully withstood the maintenance period of twelve months including at least on one complete rainy season after the date of completion of the satisfaction of the engineer, and final clearance certificate covering the maintenance is issued.


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2. GENERAL ARRANGEMENT AND SETTING OUT THE WORKS

The engineer through his authorized representative will establish the necessary bench mark and levels but the contractor must set out the works levels and he will be held responsible for its correctness.

The contractor shall provide all pegs, plates, pillars etc. required for setting out the work at his own expenses and shall give such assistance as may require by the engineer or his authorized representative in this connection both before and during the execution of works.

3. ERECTIONS AND CHECKING OF WORK

As materials are collected and construction of each section of the work is completed, it will be checked over by the engineer and the representative of the contractor shall ascertain from the engineer from time to time what portion he wishes to check over and pass, but such approval shall in no way relieve the contractor of any of his responsibilities which shall not end till the contract has been completed as defined in clause (i) i.e. limits of contracts.

4. TESTS

During the progress of the work, the contractor shall carry out such test as in the opinion of the engineer or his authorized representative are necessary to determine that the materials supplied and works constructed, comply with the condition of these specifications. Tests to be carried out shall be as required by the Bureau of Indian standards and specified by site engineer. The cost of all such tests shall be deemed to be included in the rates quoted under this tender.

5. SAMPLES

As the work progresses, the contractor shall submit such samples of materials for approval as may be required by engineer or his authorized representative. A list of such samples as required in the first instance is given in special conditions.

6. WANT OF KNOWLEDGE

The contractor must carefully go through the conditions and specifications and terms of contract. He must also visit the site and apprise himself with the site conditions / limitations. In case of any ambiguity, apply in writing to the engineer for clarifications.

No excuse for want of knowledge or non- understanding of any terms etc. for non-compliance with any part or portion of these specifications or terms of contract will be entertained.

7. OCTROI: All octroi and other charges will be borne by the contractor.


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8. WATER SUPPLY FOR WORK AND DRINKING PURPOSES

If the NHSRCL is not able to supply water then the contractor shall make his own arrangement in regard to water supply required for both the execution and testing of the work as well as drinking water for his own workers.

9. PUMPING DURING CONSTRUCTION

The contractor shall provide all appliance, pumps, Engineering machinery, suction and delivery pipes fasteners fuel, lubricant, waste and labour necessary bailing out springs, flood or sub-soil water that may be encountered during the construction of the works and shall make his rates sufficiently comprehensive to cover all costs in the connection.

10. DATE OF COMPLETION

The date of completion of the works shall be as stated in the completion period.

11. MEASUREMENTS

All the measurements connected with the work shall be taken physically in the field and should be as per dimensions given in the approved drawings, approved by the NHSRCL for the items.

The contractor must examine the approved drawings carefully before executing any work. He should lay or construct each and every item of work strictly according to the dimensions of the approved drawings. Any extra quantity of work over and above or any deviations from the shown in the approved drawing if executed for any unavoidable reason will have to be borne by the contractor and no claim whatsoever will be entertained.

12. STANDARD AND DETAILED SPECIFICATIONS

In certain clauses of these specifications reference may have been made to Indian Railway Work Hand Book-Part-III if so as far as they are relevant and applicable shall be deemed to be incorporated in this contract.

13. FLUCTUATIONS IN RATES

The contractors shall before tendering, consider the fluctuations in rates of materials and labour from time to time and shall make provision for the same in his rates as no excuse for allowing any increase in the rates tendered by him on this account shall be considered later on.

14. EMPLOYMENTS AND REMOVING OF CONTRACTOR EMPLOYEES

The contractor shall employ for the execution of the work only, such persons who are skilled and experienced in the trades .The engineer shall have authority to instruct contractor to remove immediately from the works any persons employed by him on or in this connection with the execution of works who in the


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opinion of the engineer, shows mis-conduct or are incompetent in the proper performance of their duties .The contractor himself or his authorized representatives should be available at site to receive the instruction from engineer or his representative all the time during which the works is in progress.

15. FENCING AND WATCHING: The contractor shall be responsible for fencing of excavation works and materials at site. He shall also be responsible for lighting upon proper manner at nights. The portion of works, which are open, or under construction and he shall always maintain sufficient number of watchman on duty when his staff is not actually working.
16. The lump sum tender includes the supply of all materials, labour and construction of RCC overhead tank of capacity and staging maintained in tender schedule and all approved works and described herein –after.

The contractor shall provide supply and include in his prices costs of all labour, machinery, mixer vibrators, engine pumps, shuttering templates, screens, straight, edge edging, tools, timber, rails, tackles, scat folding, planking, centering, moulds, profiles, posts, putting out pegs and all water for mixing materials and curing cement, work, all fencing, lighting necessary for the safety and convenience of the public during the progress of the work and temporary plant and appliances and permanent work.

17. The details of RCC tank and its appurtenances are as follows,

A) DETAILS OF TANKS

The design of the tank should be seismic proof against earthquake likely to occur in the region. It should also be capable of withstanding wind pressure of maximum velocity of the region. The staging should be of columns not less than 6 in numbers or of shaft. Design of tank should be obtained from reputed designers duly checked by Engineering College, as sit shall be important factor for approval of tender. The tender should mention the name of the designer while quoting their rates in Tender Schedule.

B) FOUNDATION

Ring raft or pile foundation may be kept at a minimum depth of 3 meters. Lean concrete should be provided below the foundation.

C) RCC STAIR CASE

RCC staircase shall be provided with suitable landing and railings .The width of staircase shall be one meter and it shall run spirally around from base to balcony .The landings shall be at suitable points, but not exceeding a vertical distance of 2.25m c/c. The landing shall be 0.8 meter wide X 1 meter long .The treads and rise of the stair case will be 25cm and 15 cm respectively. The height of railing on staircase shall be kept at 1.0metre up to 10 metre height and 1.25metre beyond it. There should be no cut in the balcony for providing access, cantilever should be provided for the purpose.

D) M. S. GATE AND BBCC CABIN.

A MS gate with necessary locking arrangements be provided at the face of the staircase with the expended metal cabin up to the height of 2metre on both sides of railings.

E) SS LADDER

Ladders shall be provided and fixed for access from balcony to top dome and from top dome to inside base of tank .The ladder shall 0.5 metre wide of SS 65 X 65 X 5mm angle iron and 20mm dia. SS bars spaced 25 cm centre to centre suitable holes will be made in the angle iron sides and bars will be suitable riveted or welded with the sides. Railing shall be provided on ladder outside the tank.

F) BALCONY

A one-meter wide RCC balcony shall be provided around the tank with 1.00metre high railings. There should be no cut in the balcony. (This is applicable for designs where staging is on bracing and columns.)

G) RAILING

Railing shall be provided on both sides of the RCC stair case, all around the balcony, on MS ladder (balcony to top dome) the railing shall consists of 50 x 50 x 6 mm vertical angle iron posts spaced 1.0metre centre to centre (Horizontal distance) with suitable holes to allow three rows of 20mm medium GI Pipe railing through them. The height of railing shall to 1.0metre up to 10metre vertical height and 1.25metre beyond it.

H) WATER LEVEL INDICATOR

This will consists of a 2mm flexible steel wire rope passing over smooth 5 cms dia. MS pulleys with guides to prevent eloping of the rope. One end at this rope will be tied with a ball flat, and the other end will be attached with a suitable load Recto-reflector pointer moving up and down along a vertical indicator board of 1.5 mm thick MS plate fixed in a frame of angle iron of size 30 x 30 x5 mm .The board shall be fixed up on columns at suitable height by means of 40 x 6 mm flat iron clamps. Two numbers 20mm GI pipes will be embedded in the roof slab and balcony in order to pass flexible wire rope smoothly .The white enamelled plate of the indicator will be calibrated in centimetres and meters.

I) LIGHTENING CONDUCTOR

i) An Elevation Rod

1.00 meter long 25mm dia solid aluminium rod having "trisula" of copper on top must be fitted at the top of the overhead a tank on all aluminium base with suitable bolts, nuts and washers.

ii) Down conductor

It shall consists of 25 x 25mm continuous copper tape with its upper end attached to the base of the elevated rod carried down to the side of the

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tank on a suitable teak wood battens to 1.0 metre below ground level, then laid directly about 6.0 metre away from the tank in a trench and then taken down to the earth plate which to be buried 1.0metre below summer subsoil level, the copper tape shall be fastened to the wells of the tank in the following manner.

Holes of 100 x 100 mm should be made in the columns and teak wood plug inserted with a surrounding layer of cement .The larger end of the wooden plug should be put into the hole first .The teak wood base be placed over these plugs and copper tape should be fastened to base by means of aluminium, copper screw.

The joining of the down conductor to the earth plate and base plate of the copper rod should be carried out either by means of screw or by riveting and bracing.

The conductor should be run in a direct line to earth and sharp bend and joints avoided, as these cause flow over when a lightning discharged take place and should be kept at a certain distance away from the walls to prevent accumulation of dust.

iii) EARTHPLATE

It shall be copper 80x80x5 mm and buried vertically at a distance of approximately 6 meters from the tank at a depth of 1.0 m below summer sub-soil water level surrounded by broken coal and salt etc as per specifications laid by electrical Inspector to Govt. LPA perforated 50 mm GI pipe should be fixed for watering the earth plate and shall be terminated at about 15 cm below ground level in cast iron chamber with its cover in level with the grounds.

J) TESTING WIRE

MS bar copper testing wire of a SRG shall be provided with its upper and solid rod and in addition fixed with bolts nuts to the base of the rod. The lower end shall be connected at the earth plate height of 1.5 m above GL by means of 150x25x25 mm copper link fixed on the down conductor by bolts and nuts. The testing wire shall be laid parallel to the down conductor on teak wood batten at a distance of 50 to 150 mm.

K) VENTILATOR

The diameter of ventilator shall be 0.60 meters internally 40x40x5 mm angle iron shall be fixed with column of the ventilator and the wire shall be fixed to the angle including over the expanded metal mosquito proof netting shall be provided.

L) MANHOLE OPENING

An opening of 0.60x0.60 should be provided on top dome for access in to the tank suitable cover with angle iron frame should be fixed, along with locking arrangements.

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M) FLOOR

Floor shall be provided in panels with glass script in the plan of the tank (i.e. projection of periphery of balcony) with apron of one meter all-round the tank floor. The floor shall be 5 cm thick PCC 1:3:6(with coarse sand and 20mm stone metal) over 10 cm PCC 1:3:6 (with coarse sand and 40mm stone metal).

N) Inlet, outlet over flow and washout pipes of sizes as specified in the approved Drawing including supply and fixing of sluice valve to outside pipe network shall have to be arranged and fixed by the contractor along with required collecting specials at his own cost.

One puddle collar or one pipe pieces each for inlet outlet over flow and wash out pipes shall have to be embedded in bottom dome concrete at the time of constructions. The pipe fixing include erecting of piece inside tank grouting in tank bottom, erecting vertically up to duck foot bend which will be approximately 1 to 1 ½ Meter below ground level, laying and jointing horizontally up to one meter beyond apron including all fittings if require.

The pipes shall be fixed along the column /shaft by means of iron clamps of approved drawing (design to approved by the Engineer) so that there is no vibration. The number of clamps will be decided by the Engineer. The pipe should be erected perfectly vertical.

The top of outlet pipe shall be kept 25mm above the maximum storage level of the water of tank and the top of the wash out pipe shall be kept flush with the floor. The inlet and over flow pipes will be fitted according to water level and free board height in the tank. The cost should also include excavation of trenches for laying the pipe horizontally up to a distance of 100m from bottom of tank so as to give connection to the existing pipe network.

O) COLOUR WASH

The tank when finally finished and tested shall be given three coats of cement paint of approved shade by Engineer on whole surface of tank structure. The cement paint shall be of approved standard companies such as Burger, Asian paints, Nerolac etc. The pipes and special railings and all metallic surfaces shall be painted with coats of approved paints. Capacity of tank and name of the station will have to be painted on the container of tank as per instructions of Engineer in charge for which no extra payments will be made.

18. MIXER AND VIBRATOR

The concert mixer and vibrator shall invariably be used for mixing and compaction of concert. As a part from this the contractor will also use mechanically operated winches for lifting concert for placing it at heights of more than 10m. The contractor will maintain at site logbooks for mixer and vibrator (mechanical/electrical) since starting of concerting work to the end. Contractor

has to arrange standby arrangement of suitable mixer and vibrator, which can be used in case of failure of earlier one.

19. EXCAVATION

The excavation for foundation shall be carried out in accordance with the relevant approved drawing. If shuttering timbering, sheet piling is required; the same shall have to be provided by the contractor at his own cost. In case of sub soil water pumping shall have to be done the rates of contractors must be comprehensive enough to include all such works, as no extra amount shall be paid for this. The excavation rate shall hold good for excavation in all types of strata. The contractor shall be liable for a damage done to any adjacent property or to any of the work by settlement or movement of ground is in the Assistant Engineer view attributable to the excavation work. The contractor shall also be responsible for all slips and shall not be paid extra for their removal. He shall also make good all damage due to slips ET on completion of works.

The contractor lump sum rates should, therefore, also include refilling of trenches in 15 cms. Layers including watering and ramming and disposal of surplus earth as directed by site engineer, the contractor shall do so without creating any pursuance of complaint and extra claims what so ever.

20. CONTRACTOR'S RESPONSIBILITY FOR SAFETY

The responsibility for the safety of the structure shall be of the contractor. The approval of drawing and design submitted by the contractor shall in no way shift the responsibility for the soundness and safety of the structure. The responsibility shall rest with the contractor.

21. COARSE AGGREGATES

The coarse aggregates used in various concrete and RCC works shall be screened, or broken stone ballast of approved quality shall be obtained from an approved source. The screening shall be screened is so as no flaky laminated pieces and splint remains in it. The contractor shall have to do double screening so that material obtained properly graded and free from the above defect. If the contractor fails to provide shingle of that description, he shall have to use broken ballast 6 mm to 20 mm gauge without any extra charges. The coarse aggregates used in cement concrete 1:4:8 or 1:6:12 or other weaker concrete shall be as per Rly. Specifications.

22. SAND

The sand used for ordinary masonry plaster, pointing, and 1:4:8 and 1:6:12 etc shall be the best quality from an approved source. For RCC in 1:3:6, 1:2:4, 1:1\2:3 and M: 30 Mix etc. the sand used shall be coarse and shall be obtained from sources approved by the Engineer-in-charge.


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23. STEEL

Tested MS rounds for steel or ribbed for steel bars shall only be used. Stress allowed should be corresponding to the quality of the steel use. The contractor shall have you to submitted test certificate for the same before their being used at site of works. The steel shall be purchased from the sources approved by Engineer in charge. The samples of steel will be cost tasted at the cost of contractor. Contractor shall have to produce purchase bills of steels for each lot.

24. REINFORCEMENT

Reinforcement bars shall be bent by machine. or other approved means providing a gradual and even motion. All bars shall be bent cold. No reinforcement shall be bent when in positions in the works without the approval of the Engineer in charge. Bends shall be as per IS: 468 of 1967.

The cover of concrete to the reinforcement shall be as per IS code or described on the drawings and shall be provided by means of cover blocks of cement mortar. The cover blocks of same shall be grade of concrete as the member, but with lesser aggregate size. The vertical distance required between successive layers of bars on beam or similar members shall be maintained by mild steel slicer bars. No bar shall be less than 3m in length except where it cannot be avoided.

25. SHUTTERING

Shuttering for concert shall be rigidly constructed of materials approved by the Engineer and shall be true the shape and dimension shown in the work drawing. The shuttering used shall be of steel ply preferably and in case timber is used; the timber shall be well seasoned, free from loose knots. The surface in contract with the concert shall be linked with ply wood sheets (In case of timber shuttering) and shall be free from adhering, grout, projections, slits and other defect. Joints shall be sufficiently tight to prevent any leakage of cement. Duct tape shall be used to seal joints to prevent leakage. The surface of shuttering in contract with concrete shall be applied with approved grease or other approved oil or approved stripping agent every time before use, so as to provide a smooth surface of concrete after removal of shuttering and to prevent any shiny or honey combed surface of concrete. Released grease/oil shall not be used as to leave stain marks on concrete. Since vibrate is to be invariable used. Hence, the shuttering to be used should be strong enough so that no undulation severe irregularities occur on the concrete surface as no patches or plaster on the concrete surface shall be allowed. CONCRETING: (ONLY APPROVED DESIGN MIX CONCRETE IS TO BEUSED):

The cement and aggregates shall be thoroughly mixed together is desired proportions in a mechanical mixer. The concrete shall be of right slump as approved by the Engineer in charge.

The concrete shall be distributed from the mixer to the position of placing in the works by approved means, which do not cause segregation or otherwise impair the quality of concrete. All mixing and distributing equipment's shall be kept from the point of view of setting of concrete.

Concrete of different strength [Mixes] shall be prepared as per standard practices/relevant codes.

No concreting should be done until the formwork and the reinforcement is checked and approved by the Engineer and necessary arrangement for completing the job up to the predetermined level and vibrating are assured. All concreting shall be carried out in the presence of duly authorized representative of Engineer and of not below the rank of Section Engineer/Assistant Engineer.

26. FINISHING

The outer and inner surface of all concrete work shall be neatly finished and shall be free from any undulations or irregularities. No patches or honeycombs in the concrete work shall be accepted. In case there are any undulations or irregularities in the shape of the tank or its supporting member's decision of the Engineer in charge shall be binding on the contractor. Immediately after removal of forms superficial water and air holes should be filled in unless and other wise instructed. The face of exposed concrete placed against shutting should be rubbed down with carborandom stone.

27. CURING

All the concrete work shall be adequately cured for 21 days. The site in charge shall have authority to employ without notice departmental labour to make good short falls in the contractors arrangement for curing operation at contractor's cost. The certificate of site in charge in writing shall be conclusive evidence to this office. The recovery for departmental labour shall be made at the rate of Rs. 300/- per man day of eight hours.

28. MODE OF PAYMENT:

The following detailed payment schedule shall be applicable for payments,

Sr. No.	Particular	Breakup	Commutative
1	After approval of detailed design calculation & drawings.	2 %	2 %
2	After casting PCC (1:3:6) for levelling course.	4%	6%
3	After casting foundations.	10%	16%
4	After casting half of the staging.	10%	26%
5	After casting full of the staging (Excluding ring beam).	10%	36%
6	After casting ring beam tank base and slant slab.	10%	46%
7	After casting beam vertical walls of tank	14%	60%

8	After casting dome & staircase.	15%	75%
9	After completion of Misc. item such as fitting like ladder railing fixing ventilators WL indicators lighting conductor etc.	15%	90%
10	After fixing vertical water pipe including all fittings such as sluice valve, non-return valve clamps etc finishing of work to the satisfaction of Engineer in charge & testing tank after water fillings.		
11	After successful operation of water tank for three consecutive months without defect.	10%	100%

The technical staff should be available at site whenever required by the Engineer in charge to take instructions for compliance by the contractor /firm. The contractor should have given the name and other details of graduate engineer/ Diploma holder / Sub Engineer whom he intends to employ or who is under employment on the work at the time he commence the work.

29. The contractor shall make his own arrangement at his own arrangement at his own cost for housing his staff and store for the work. However, open space will be provided by the Rlys if needed.
30. The contractor shall have to do dewatering, bailing out of ground water/rain water if any or what so ever water encountered at his own cost and for which no payment will be admissible.
31. No claims, compensation of charges shall be considered for payment to contractor due to any reason such as labour strike, lockout or any other unforeseen contingency at the site of work or labour camp.
32. The tank shall have to be tested for the water tightness and testing shall be done as per provisions in ISStandard (with up to date revision) and it shall be the responsibility of the contractor to make it water tight. The arrangement for water shall be done by the contractor at his own cost for testing purpose. Testing for the water tightness of the tank shall be done before the painting of the tank. Too coats of anti-corrosive painting should be done inside the container and roof slab after the tank is tested for with tightness snow-cem or durocem paint of similar approved quality paints and Colour duly approved by Engineer should be use.
33. Water proof plaster of 20mm thickness should be done inside the container water leakage according to I.S. Specification to avoid.
34. The contractor shall make his own arrangement for transport handling and storage and insurance of all materials. He should also arrange all tools and equipment necessary etc required for the project execution of work.
35. Cement used for ancillary or contingent work such as construction of working platform and construction of water sump, central line pillars etc which are necessary for due completion of work in the opinion of the competent authority shall be treated as the requirement of cement for the works and necessary quantity of cement will be arranged by contractor at his own cost.


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36. All the Iron and Steel required for the work shall be arranged by contractor at his own cost. Steel for reinforcement shall confirm to IS 1876 for steel (with upto date revision) and IS 1139 – 1966, IS 1876 for steel (with upto date revision). The contractor is required to produce the test certificate of the manufacturers before use of steel for the work. No untested steel shall be allowed to be use under any circumstances.
37. All concrete shall be mixed in concrete mixer and contractor by suitable mechanical vibrators at contractor's own cost. Slump tests shall be carried out during concreting and sample test cubes prepared and tested in due course. The testing will be carried out by the Engineer-in-charge at contractor' expenses and if the results of this be unsatisfactory, the contractor will be bound to dismantle and reconstruct the particular portion of work which has given un satisfactory test result. For all cement concrete work coarse river sand shall only be used with relevant grades, no other sand shall be used.
38. No lead for water or any other material shall be paid and tendered amount should be inclusive of all lea and lift for the materials.
39. Detailed calculations of designs and drawings duly check and certified by Designer will have to be submitted by the contractor for scrutiny and approval of the competent authority within one month of issue of acceptance letter. Detailed designs shall include calculation at least for,
- Foundation depth, design of foundations, containers walls columns, beams, slabs and etc. complete.
 - Structural designs of all components of the reservoir with corrossions considerations.
 - Lighting conductor, electrical (and mechanical equipment's).
40. The designs will be subject to the approval of the NHSRCL and can be altered to suit the structural safety of the work and contractor shall make no extra claim on the account. The responsibility for the designs execution commissioning and testing to entire satisfaction of the Engineer-in-charge will, however, rest solely with the contractor, contractor will have to rectify the defects immediately within a fortnight as and when noticed during the construction period and also after constructions till the defect liability period is over at his own risk and cost. (The liability period should not be less than 12 months)
41. Any defects, shrinkage or other results which may appear within 12 month from the completion date of the time arising out of defective or improper material or workmanship are upon the direction of the Engineer-in-charge/competent authority to be amended and made good by the contractor at this own cost and in case of default, competent authority may recover from the contractor the cost of making good the works.


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42. The foundation designs shall be based on test result and bearing capacity of soil plate load test etc made by Govt. recognized College at Vadodara / Ahmedabad or approved test laboratories at Vadodara / Ahmedabad.
43. Nothing extra shall be paid for wastage of any material including cement and steel etc.
44. The type of tank shall be circular RCC intz tank with staging of columns and bracings or shaft.
45. The work of construction of RCC overhead tank involves specialized workman ship, hence, requirements of higher standard than general concrete work is essential.
46. The structural design shall provide and shall take into account for the leads of single story residential building to be constructed the ground floor of the proposed tank. For this a suitable bracing shall be provided and constructed at the level on which the residential building shall be constructed by the department later. These ground level beams to connect every column shall be the part of the contract.
47. The tenderers submitting their offer shall submit the drawings of proposed RCC overhead tank as mentioned earlier showing tentative site of various elements along with other technical details. The contractor shall further be required to submit detailed drawing as specified earlier design and calculation within fifteen days from the date of acceptance of their tender for scrutiny and approval of the Senior Divisional Engineer of the section, the responsibility of the deign construction structural stability, safety and water tightness for this water tight structure shall rest solely with the contractor and he shall have to make good any damage or loss to the structure if any of the above mention works.
48. The tenderers submitting their offer shall indicate the approximate quantities on various items involved in the work e.g. cement and steel etc. This information shall be attached to the tender itself; the lump sum offer shall include provision for staircase with railing, lightening arrestor and water level indicator. Inlet, outlet overflow pipes and scour pipe. The contractor shall be required to fix there pipes upto the ground level including the duck foot Bend which too shall be supplied by the contractor the necessary joining material shall also be provided by the contractor.
49. The contractor shall find out safe bearing capacity for the design of foundation of RCC Tank accordingly and he shall be solely responsible for the safety of the structure. The above information is given only as a general guidance and the tender must be quoted upon the actual safe bearing capacity at site and the contractor shall not be entitled for any compensation/ claim for any change in the safe bearing capacity of the soil as per actual trial pit conducted after the tender is awarded. The foundation shall be provided only as per the design based on trial pit details submitted by reputed engineering college/ laboratory from Ahmedabad / Vadodara.


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50. The contractor shall have to make his own arrangement for requirement of electric power, telephone connection for construction.
51. The contractor shall have to make his own arrangement for water required for execution, testing of the works, the department shall render only recommendatory assistance, if necessary.
52. For blasting, if required in foundation, the contractor will make his own arrangement for license / permits and material from competent authority. No claim shall however be entertained if permission for such blasting is not granted by the competent authority.
53. a) RCC stair case for the flight from floor level of service reservoir to the top of service reservoir shall comprise of suitable landing and RCC railing. Necessary gate with locking arrangement at floor level and balcony shall be provided.
- b) RCC stair case shall be provided in M: 30 cement concrete, to be designed by the contractor.
54. a) The FI manhole cover and frames and the ventilators shall be of approved quality as per IS specification. The minimum number of manholes to be provided shall be four.
- b) Air vents where provided for, shall be 100mm dia swank type. The minimum number of these shall be twelve.
55. a) The tank shall have one meter wide RCC gallery all round at the ring beam level. RCC railing ground the gallery shall be provided by the contractor. In the railing, posts of 100mm dia. and 1.00m long shall be provided. Same specifications for railing shall be adopted wherever necessary e.g. stair etc.
- b) The minimum thickness of the container shall not be less than 150mm & minimum thickness of top dome shall not be less than 80mm.
56. WORKMAN SHIP:
- (a) Excavation: The depth of excavation will generally be guided by the underground strata and the safe bearing capacity of the foundation soil as directed by the Engineer- in charge. Strata chart of trail pit section is made available for the purpose of design. The tenderer shall however verify the actual site conditions before tendering for the work and shall ascertain while execution of contract as the case may be.
- (b) Filling Foundation with Bed concrete: The foundation shall be filled with bed concrete 1:3:6 (1 Cement : 4 sand : 8 Metal – 40 mm gauge graded) of the prescribed mix and for the height shown in the drawing or as per instruction of Engineer – in –charge, in reference to relevant IS code.
- (c) Reinforced Concrete Work: The foundation shall be filled with bed concrete 1:4:8 (1Cement: 4 sands: 8 Metal – 40 mm gauge graded) of the prescribed

mix and for the height shown in the drawing or as per instruction of Engineer – in –charge, in reference to relevant IS code.

- i.) Reinforced cement concrete M:30 MIX (With reinforcement as per the detailed design shall be laid over the bed concrete, for foundations, columns and braces and beam which are not on the water face.
- ii.) Reinforced concrete of M:30 MIX (With reinforcement as per the details shown in the approved design and drawing and shall be provided in Ring beams, tank floor slabs, Container walls and inside column, Braces i.e. the members which retain water). Clear cover of 40mm shall be provided, on inner side of container portion including bottom floor.
- iii.) A minimum 20mm, thick plaster in cement mortar 1:2 shall be provided on the inside surface of the container i.e. on wall as from inside, column and beams inside the container and the bottom floor of the container after mixing suitable water proofing compound.
- iv.) Minimum thickness of the top dome slab shall not be less than 100 mm with 40 mm clear cover from inside i.e. water side.
- v.) Measuring: The quantity of cement shall be determined by weight. The quantity of fine (Narmada sand) and coarse aggregate shall be determined by weight. The contractor shall have to submit the concrete mix design for the approval and test cubes to confirm the mix will have to be tested in the presence of Engineer-in-charge through some Engg. College or Railway approved lab at ADI or BRC for which no extra payment will be paid to the contractor.
- vi.) Mixing: Concrete shall be mixed in a mechanical mixer, mixing shall be continued till there is a uniform distribution of the in gradients and the mass is uniform in colour and consistency, but in no case shall the mixing be done for less than two minutes.
- vii.) Transporting: concrete shall be handled from the place of mixing to the place of final placement as rapidly as practicable by methods which will prevent segregation loss or any in gradient if segregation occur during transport, the concrete shall be pre mixed before being placed, if permitted by the Engineer-in-charge. The concrete shall be placed and compacted before getting set and shall not be subsequently disturbed. Method of placing shall be such that there is no segregation. Concreting shall be carried out continuously up to construction joints, position and agreement, which shall be re determined by the designer and approved by the department.
- viii.) When the work has to be resumed on a surface, which has hardened, such surface shall be roughened .It shall than be swept clear, thoroughly wetted and covered with 13mm(or1/2") layer of mortar, composed of cement and sand in the same ratio as the cement and sand in the concrete mix. This 13mm (or ½") layer or mortar shall be freshly mixed and placed immediately before the placing of the concrete.
- ix.) Where the concrete has not fully hardened all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement or particles aggregate .The surface shall be thoroughly wetted and all free water removed. The surface then is coated with neat cement grout. The first layer of concrete to be placed in their surface shall not exceed 15cms in thickness, and shall be well rammed against old

work particular attention being paid to corners and close spots.

- x.) Mechanical vibration: When mechanical vibrators for compacting concrete are used, reduced water contents should be adopted. Vibration of very wet mixes is harmful and shall be avoided.
- xi.) Curing: The concrete shall be covered with a layer of empty gunny bags, canvas or similar absorbent material and kept constantly wet for at least 7 days from the date of placing of concrete. Concrete cubes shall be taken for every day of concreting by the engineer in charge. These cubes shall be kept on the same member of the structure from where these samples are taken, till the samples are tested in the testing lab. These shall be suitably tied with wire in case of columns. This is to ensure same curing of samples that of the main structure.

It would be essential for the contractor to install a suitable pump at the site of work, the pumping head of which shall be adequate for curing the highest part, i.e. up to roof slabs height of the tank. A suitable sump shall also be constructed at the site of work where this pump shall be installed; arrangements of adequate water shall be the responsibility of the contractor.

(d) Form work:

- i. The form work shall conform to the shape lines and dimensions as shown on the approved drawings and be so constructed as to remain sufficiently rigid during the placing and compacting of the concrete and shall be sufficiently water tight to prevent loss of liquid from the concrete .It shall have enough strength to withstand the weight of the concrete and the labours working on it.
- ii. The formwork shall be cleaned off all rubbish particularly chipping shavings and sawdust before the concrete is placed. Heavy type of steel shuttering made out of new, plain and smooth steel plates shall be used.
- iii. Striking of forms:-In no circumstances shall forms be struck until the concrete reaches strength of at least twice the stress to which the concrete may be subjected at time of striking.

57. All the cast iron or pipes shall be double flanged pipes and specials shall be of (LA Class) i.e. tested for a head of 12kg/cm² required for inlet, outlet overflow and scour, puddle collar pieces and joining materials shall be supplied by the contractors. These pipes shall be supplied and specials shall be required to be fixed in position e.g. from inside level of the tank to duck foot bend below GL, including testing of the fitting by the contractor. All gasket joints shall be flanged joints. All the fittings shall be as per IS Standard. The agreements for inlet, outlet, overflow and scour shall be such that each is independent of the other .All the pipes and specials required for above shall be fixed during concreting .The dimensions of inlet, outlet scour and overflow pipe shall be as under.


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1.	Inter GI	-2 pipes of 100mm dia. 50m long along GL
2.	Out let pipe	-1 Pipe of 150mm dia. -50m long along GL
3.	Scour pipe CI	-150mm dia
4.	Overflow pipe	-150mm dia

59. The tank shall have to be tested for the water tightness and testing shall be done as per provision in the IS Standard (With up to date revision) and it shall be the responsibility of the contractor to make it water tight .The arrangement for water shall be done by the contractor at his own cost for testing purpose .If available water will be supplied by Rly and necessary charges will be paid by the contractor. However rly is not bound to supply the water to the contractor at any stage and no extension will be granted on account of water supply. The testing shall be done as directed by the Engineer – in –charge and in such a manner that not more than 30cms of water shall be filled up in the tank per day.

The contractor shall have to give a test of watertight ness of reservoir to the entire satisfaction of the department. Test for settlement shall have to be furnished. The responsibility shall also rest solely with the contractor. The refund of SD contemplated in the detailed NIT clause 8 (B) of INSTRUCTIONS TO TENDERERS AND CONDITION OF TENDER shall be made only after expiry of 12 months after the satisfactory test on water tightness.

60. The work shall be treated a complete when the same is completely tested handed over to the department including site clearance. In normal circumstances that is, at temperature above 21 degree C (or 70F) forms may be struck after expiry of the following periods.

- a) Vertical sides of slabs, beams & columns -48 hours.
- b) Bottoms of slabs above 4.6 m (15') span, bottom of beam up to 6m or (20') span and arch rib bottom up to 6M (20') span -14 days.
- c) Bottoms of slab above 4.6m (10span -7 days.
- d) Bottoms of beams over 6M or (20) span – 21days.
- e) The formwork should be left longer as it would assist the curing.
- f) Steel
 - i) Cleaning:-All metal for reinforcement shall be free from loose mill scale loose rust, oil and grease or other harmful matter immediately before placing the concrete.
 - ii) Placing: All reinforcement shall be placed and maintained in position as shown in the approved drawings.

It is very difficult and costly to alter concrete once placed .It is therefore very important to check the reinforcement its placing and getting approval of the Engineer-In-Charge before being covered .The clear cover of concrete alone over the reinforcement on water face shall not be less than 40mm.Since the water shall be chlorinated. Inside face of top dome shall also have 40mm minimum cover of concrete.


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- iii) Size and Quality of steel Bars: The steel bars use for reinforcement shall be strictly as per relevant IS specifications contractor shall have to produce test certificate of steel used.
- g) Test for compression strength of concrete:

The specimen shall be either cubes or cylinders whose sides shall be as given below.

For cube 6" x 6" X 6" or 15cm x 15cm and for cylinders 6" dia x 12" in height or 15cm dia x 30cm height .The mould for test specimens shall not be of absorbent material and shall be strong enough to hold their form during the moulding of test specimens. The moulds shall be so constructed that there shall no leakage of water from the test specimens during mounding. Each mould shall be provided with a base plate having a plane surface and made of non-absorbent material. A similar plate shall be provided for covering the top surface of the test specimen when moulded. Glass plate 6mm or 1/4" thick can be used. Samples of concrete for test specimens shall be taken at the mixer and the specimen shall be representative of the entire batch.

The interior surface of mould and base plate shall be removed from the mould at the end of 24 hours. During this period, it should be kept in moist conditions for curing. The specimen shall be kept at the same place of the structure where the concrete of that batch has actually been used as described in Para "curing". Proper marking on the cubes identifying the date/ time of casting and proper record shall be kept in registers regarding the location where the concrete has been laid. The contractor shall be required to provide testing equipment at the site for cube testing.

61. Contractor shall provide architectural effect to the structure and approval of the same have to be obtained from the NHSRCL no extra cost shall be payable for such architectural effect.

62. Major items of work (Lump Sum tender):

1. Excavation of foundation (as per actual site condition)
2. Filling foundations levelling course in cement concrete 1:4:8 with 40mm size BT metal.
3. Reinforced Cement Concrete M-30 approved mix for footing and foundation etc. including reinforcement and centring.
4. Reinforced cement controlled concrete with M-30 approved mix for tank floor, ring beams, container walls, inside column, bracing i.e. all members which retain water etc. including reinforcement and centring.
5. All concrete proportions are tentative for calculation purposes. Actual proportions are to be fixed after proper design of concreting by the contractor and approved by NHSRCL.
6. Supplying and fixing of tested quality for reinforcement fixed in position including cost of binding wire and labour for cutting bending and binding of bars (including overlap) as per standard specifications.

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7. Cement paint painting two coats of approved quality and shade by Engineer-in-charge of site.
8. Filling foundation with moorum rammed and watered (including collection of moorum)
9. Anticorrosive paints two coats inside the container

63. PIPE CONNECTION AND MISCELLANEOUS ITEMS

1. Providing, fixing, laying and joining the following Duck foot / cast iron GI pipes and Duck foot F bends etc. including testing of pipes and joints and cost of joining materials all complete.
2. A. Puddle collar specials for outlet, inlet, scour and overflow pipe connection, including provision of puddle collar and specials.
B. Inlet pipes.
C. Outlet pipes
D. Overflow pipes.
E. Scour pipes.
F. Duck foot bend 90 degree (medium class)
G. Supplying and fixing in position of ironwork for clamps to support vertical cast iron pipes.
3. Water level indicator with float guide pulleys etc as per specification, supplied, fitted, fixed, built in painted etc. complete.
4. A. Lightening conductor, 4.5 metre long aluminium solid rod of 25mm diameter with base complete as per specification.
B. Supplying & fixing aluminium earth plate 600X600X6 mm size with aluminium.
C. Supplying & fixing earth connection for the earthing with 30 X 3 mm copper cradle and nails on jetties.
5. Laying, fixing and joint CI / MS pipes with special class 'L' indicating testing of joints pipes specials and jointing materials all complete for railing where necessary.
6. Supplying and fixing air vents, as per specification.
7. Providing and fixing chamber covers with frame and locking arrangement etc. complete on the inspection manhole chambers as per specifications.
8. Staircase-outside/inside the tank as per instruction of Engineer-in-charge.

64. SPECIFICATIONS REFERRED TO :

The specifications contained herein are not exhaustive and for such items of work which may arise and which are not covered by this specification, the provisions in the relevant Indian Standard (Latest edition) with upto date revision shall apply.

A list of few important Indian Standards relevant to the work is given below. Other relevant have been referred to appropriate places. Provision of National Building Code shall be applicable where relevant.

Wherever reference to the Indian standards mentioned below or otherwise appears in this specification, it shall be taken as a reference to the latest version of the standard.

65. (a) BLASTING

In the event of blasting being necessary the same shall done with allprecautionary measures as per ISI-4081 and as direct by the executive engineer after obtaining necessary permission of the department and other authority no extra payment shall be done the contractor for such blasting.

(b) DEWATERING:

No extra amount shall be paid for bailing out water during excavation due to rains, ordinary springs etc for any other reason.

66. Test certificate and purchase bill of cement to be used in the work shall have to produce before execution of work. Cement shall confirm to IS-269 as up to date or any other relevant Indian standard specifications to the specified in the contractor documents.

67. The plate bearing capacity of soil will be taken by the Govt. Egg. College and other agencies as approved by Sr. Divisional Engineer in charge. Calculations for foundations& super structure of the tank shall be based on trial pit details.

68. Site plans of all the locations for proposed overhead RCC tank will be given by Railway Administration.

Referred Indian Standards specification with upto date amendments:

Sr. No.	IS Specification	Description
1	IS 3370 (Pt.II, III & IV)	Structure for the storage of liquid Part-I – General requirement Part-II – Reinforce concrete Part-III – Structure Part-IV – Design TABLE
2	IS 456	Code of practice for plain & reinforced concrete.
3	IS 269, IS 455	Cement-Ordinary Portland cement or rapid hardening Portland cement blast. Furnace slag cement.

4	IS 388, IS 515	Aggregate – Aggregate coarse & from natural sources for concrete.
5	Relevant IS	Water – Water used both for mixing & curing shall be free from injurious amount of deleterious materials. Potable water shall be used.
6	a) IS 432 (Pt.I)	Reinforcement – Mild steel & media tensile steel bars & hard drawn steel wire.
	b) IS	Deformed bars.
	c) IS 1786	Cold twisted steel bars.
	d) IS 1566	Hard drawn steel wire fabric.
	e) IS 226	Structural steel section.
7	Water tightness Test of Hydraulic Structures IS 3370 (Pt.I)	Code of practice for the concrete structures for the storage of specifies water tightness test at supply level as described in clause 10.1.1, 10.1.2 & 10.2.3. of the standard.

69. TIME OF WORKING

The contractor will be required to see that usual working hours are adhered to .No work should be done in the night without the permission of the engineer in charge except when it is absolutely necessary for the savings of life or property or for the safety of the work in which case the contractor shall immediately inform the engineer and shall obtain his prior approval.

70. ISSUE OF STORES

All the materials required for the execution of the work shall have to be arranged by the contractor himself at his own cost. The contractor shall have to provide necessary storehouse and watchman at his own cost at site of works for safety of materials and for their precaution form weather and other causes and shall be held responsible for the security and upkeep of all such stores. The materials so stored / collected at a particular site shall not be removed or shifted without permission in writing by engineer in charge. In no case contractor will store materials more than the requirements of site of for his other site.

71. PHOTOGRAPHS AND RECORDS

Contractor must allow sufficient margin in the tender to cover the cost of taking photographs for building and other structures which show cracks or defects before operation commence. Fixing of toll rates registration and other legal registration and other legal expenses in connection with precautions, necessary to bear possible claims for damages to property which is defective before trench work and excavation starts

72. ADDRESS OF THE CONTRACTOR: The address maintained by the contractor in the contract bond shall be taken as the address for all purposes of the contract any change in address should be intimated by the contractor in writing. Such change of address shall be taken to come in force from the date of intimation regarding change of address received by the department.

The contractor shall ensure that all correspondence directed to the address maintained by him in the contract or the changed address intimated by him in

writing, is properly received. If the contractor does not receive any correspondence directed to such address, it shall be his responsibility and damages, if any, on account of his not having received any information directed to his address, shall be on his account.

CRITERIA FOR DESIGN

1 GENERAL:

- 1.1 Capacity of the Container of the tank shall be the volume of the water, it can be store between the designed full level (FSL) and lowest supply level (LSL) i.e. the level of the lip of the outlet pipe.
- 1.2 Free board is the indication of space provided above F.S.L. and shall be measured at vertical distance above F.S.L. to level at which water may spill out of tank by path other than that provided for overflow. Minimum free board to be provided is 200mm.
- 1.3 Height of the Staging or height of the tower shall be vertical difference between L.S.L. of the tank and the average ground level at the site of tank.
- 1.4 Dead storage shall be the storage capacity of water below L.S.L. Depth of dead storage shall be the vertical distance between the outlet level and washout level. The washout pipe level shall be at the lowest portion of the container.
- 1.5 The walls of the container shall be designed for the full supply level of the container. However, the wall should be checked for the occasional rise in water level including free board for safety.
- 1.6 The allowable bearing pressure of the safe bearing capacity of the strata as specified in the table of IS 1904 : 1978 of its latest revision, whichever, is less shall be considered and design of foundation shall be based on this unit pressure, unless the foundation exploration is got done through recognized agency.
- 1.7 The contractor quoting rates of R.C.C. OHT based on his own design will be responsible to obtain Technical sanction from the competent authority i.e. from the Chief Engineer, Western Railway, Mumbai.

2 GENERAL REQUIREMENTS:

2.1 STAGING:

- 2.1.1 Towers shall be checked for seismic forces conforming to IS1893-1973 criteria for earth quake resistance design of structure of its latest revision.
- 2.1.2 Water tank in vicinity of Railway lines, colliers and blasting sites or in areas, which may be subjected to bluster shock, shall be designed for the dynamic forces so developed.

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2.1.3 Members of towers, which are primarily subjected to dynamic stresses, shall be checked for quantity of the members at the joint.

2.2 Following shall be minimum thickness of various members of the tank container:

Top Dome	= 100mm
Bottom Dome	= 150mm
Vertical wall of Container	= 150mm
Shaft wall	= 150mm
Slant Slab (Slope 45 degrees)	= 200mm

2.3 Error up to 2% weights, forces, moments etc. in the design calculations may be neglected.

3 LOADS:

3.1 For all RCC and PCC components unit weight of concrete shall be taken 2500 kg/cum and 2000 kg/cum respectively.

3.2 Water load and snow load shall be taken as per IS 875-1964 or its latest revision (BIS).

3.3 Live load on RCC elevated tank shall be taken as per IS 875-1964 or its latest revision (BIS).

3.4 Wind load as per figure A i.e. Basic maximum wind pressure map of India including winds of short duration's in squalls as per IS 875-1964 code of practice for structural safety of building's loading standards or its latest revision shall be considered. Reduction factor as per ----3 of Clause 4.2.2 shall not be applied to water towers.

3.5 Seismic forces on the tower shall be as per IS: 1893 – 1975 or its latest revision. Wind and seismic forces shall not be assumed to act simultaneously.

3.6 Increase Permissible Stresses:

Where stresses due to wind or earth quake: temperature and shrinkage effects are combined with those due to dead, live and impact loads the stresses specified in table 13, 16 & 17 of IS 456-1978 may be increased up to a limit of 33.33%.

4 DESIGN:

4.1 Shape of the structure shall be Intz tank as directed by Engineer-in-charge.

4.2 Following general description and salient features of the design shall be mentioned in the beginning of detailed design calculations:

- (i) Capacity.
- (ii) Height of the Tank.
- (iii) Safe bearing capacity should be taken as minimum of following:
 - (a) Safe bearing capacity of the soil based on visual inspection along with strata chart of trial pit.
 - (b) OR, safe bearing capacity of soil for Design purpose shall be taken as 15.00 Tonnes/SQM.
 - (c) OR, additional safe bearing capacity based on chemical analysis of subsoil water and soils where possibility of brackish/saline water is anticipated.

However, detailed foundation design should be done on the basis of safe bearing capacity as found out by actual site investigation done in field.

- 4.3 Line diagram showing dimensional, sectional elevation shall be given.
- 4.4 Stability of the structure shall be checked as per provision of Clause 19 of 1A 456-1978.
- 4.5 Design shall be based on the worst possible combination or various loads, moments, shears and resultant stresses in the tank for the following two cases:
 - i) Tank Full
 - ii) Tank Empty

Tank full means depth of water inside the container up to full height of the container without consideration of free board.

- 4.6 Design shall be based on accepted basis and methods of design as well as the provision of IS: 3370-1965, IS: 456-1978, IS: 1343-1960 code of practice for pre-stressed concrete IS: 2210-1962 criteria for the design of reinforced concrete shell structures and forced plates IS: 2204-1962 code of practice for construction of reinforced concrete shall roof etc or their latest revision. However, methods based on experimental investigations as mentioned in para 18.2 C in IS: 456-1978 shall not be entertained.
- 4.7 The parts of the structure neither in contact with the liquid on any face not enclosing the space above the liquid as in the case of staging of a tower shall be designed on working stress method in accordance with the requirement of IS: 456-1978, staging should be further checked for ultimate load conditions to ensure the desired margin of safety as per Clause 46.300 IS: 456-1978 or its latest (BLS) revision.
- 4.8 Design of member other than those excluded by clause 4.4 above (i.e. roof, walls, floor etc of the container) shall be based on consideration of adequate resistance to cracking as well as adequate strength. Calculation of stresses shall be as per para 3.3.3 of IS: 3370 – (Para II) of 1965 or its latest revision.

4.8.1 Permissible stress in concrete for Resistance to Cracking:

For calculation relating to the resistance of member to cracking the permissible stresses in tension (Direct and due to bending) and shear shall confirm to the values specified in table-1 of IS: 3370- (Part II 1965).

“The permissible tensile stresses due to bending apply to the face of the member in contact with the liquid”. In members less than 225mm thick and in contact with the liquid on one side, these permissible stresses in bending apply also to the face remote from liquid.

4.8.2 For Strength Calculation:

In strength calculations the permissible concrete stresses shall be in accordance with Para 44 of IS: 456-1978 where the calculated shear stress in concrete alone exceeds the permissible value reinforcement acting in connection with diagonal compression in the concrete shall be provided to take the whole of the shear.

The maximum reinforcement shall confirm to clause 25.5.1.1 (b) and 25.1.1.2 of IS L 456-1978.

4.8.3 The permissible compressive stress (direct) in shells (i.e. Top done, Conical Wall and Bottom Dome) shall be reduced by 43% for 10cm Thick shells. For thickness more than 30cm. The compressive stress shall be reduced 15% and for intermediate thickness i.e. 10cm to 30cm linear interpolation shall be done.

4.9 Permissible Stresses in Steel:

4.9.1 For strength calculation (Concrete assumed to be cracked): the permissible stresses in reinforcement shall be as per Table-2 of IS: 2370 (Part II) – 1965 or its latest revision. For Tor Steel, the stresses shall be as per IS: 1786-1979 cold worked steel high strength deformed bar, for concrete reinforcement or its latest revision.

4.9.2 The analysis of staging of the tank shall be done by using any established method such as mortal frame method etc. The staging shall be analyzed for combination of dead loads, live loads and wind or seismic loads. The effect of continuity of beams the junction shall be properly accounted and column reaction worked out for different combination of loading axial forces, shear forces, bending moments and torsion shall be calculated in members.

4.9.3 Modules of elasticity of concrete EC shall be taken as $5700/F_{ck}$ where F_c is characteristic cube strength of concrete in N/Sq. mm as per Clause 1:5:2:3 of IS: 456-1978.

4.10 Shaft:

4.10.1 For load bearing shaft minimum thickness should be 200mm shaft and it should be designed in M 30 mix.

- 4.10.2 Shaft supporting a water tank must be designed as given under the para stresses in circular supporting walls at page 84 of the Book. "Concrete Water Towers Bunkers Soils and other Elevated Structures" by Gray and Manning 5th edition published by cement and concrete Association. The vertical cantilever of hollow circular section and has to resist a bending moment and shearing forces. In addition to main stresses caused by the wall acting as a hollow circular vertical cantilever the wind flowing on one face tends to flatten that face distorting the circle into an oval. Horizontal reinforcement is provided to resist the bending moment. $M+0.035 Sq. PD$ producing tension on the inside face and a moment $M+0.031 Sq. PD$ causing tension on the outside face, where P-Unit wind pressure in KN/Sq m and D=CC diameter of shaft in meters.
- 4.10.3 Shaft shall be checked for combined axial load and bending due to wind or seismic loads and shall satisfy the tank empty conditions.
- 4.10.4 Horizontal construction joints in shaft shall be as minimum as possible.
- 4.10.5 Age factor increasing strength shall not be considered.
- 4.10.6 Shaft should be checked for tensile stress in worst condition for combination of axial tension on bending axis tension on bending axis due to wind or seismic load for tank full and tank empty conditions.
- 4.10.7 On account of motor inaccuracies in construction of the shaft the allowable direct compressive stress shall be reduced by multiplying with 0.85 factor. On account of buckling reduction factor if any shall be multiplied to the value 0.85 for the calculation of direct compressive stress the contribution of steel shall be neglected.
- 4.10.8 For buckling calculations reduced value of modules of elasticity due to creep shall be maximum 0.4 times in value as per IS 456-1978.

5 FOUNDATION:

- 5.1 Trial pit at site of elevated tank shall be taken. S.B.C. of the soil or allowance bearing pressure on soil shall be established on the basis of actual strata met with LSB test result.
- 5.2 The permissible increase in bearing pressure for different types of foundation shall be as per Table-1 of IS: 1893-1975 or its latest revision, when seismic forces are considered and for wind forces it shall be as per IS: 1904-1966 or its latest revision.
- 5.3 For the purpose of the design of foundation the loading data shall give the magnitude of vertical load, lateral load and moments at top of roofing (foundation) level. The data shall be made available for both the cases, as per Para 4.5 above.
- 5.4 The foundation area for individual column footings, combined footings, annual rafts and solid rafts shall be worked out on the basis of lower most value of the safe bearing capacity or allowable bearing pressure values as derived from IS

1904-1978 code of practice for structural safety building shallow foundations IS: 6402-1971 code of practice for determination of allowable bearing pressure on shallow foundation IS 8009 -1980 code of practice for calculating of foundation or their latest revision.

- 5.5 In case of purely cohesive and C- \emptyset type of soil particular attention should be given to IS: 1904-1978 Clauses 6 & 7 Settlement shall be circulated as per IS: 8009 (Part-I) 1976 for foundation.
- 5.6 In case of cohesion-less soil foundation shall be designed for safe bearing capacity and shall be checked for permissible total as well as differential settlement values as given in relevant IS.
- 5.7 In case, the soil beneath the footings is not of the same characteristic the footings shall be designed for the soil having lowest S.B.C. or A.B.P. as the case may be in such conditions the permissible limits of total as well as differential settlement shall be limited to 75% of the permissible limits given in ISS.
- 5.8 For special type of foundations like well foundations under ream pile foundation etc. decision of Engineer-in-charge shall be final and binding to the designer.
- 5.9 Classification of soil and all characteristics of soil relevant to S.B.C. and A.B.P. shall be as per the solid investigation reports of Government Institutions or Government approved institution.
- 5.10 For the design of foundations of annual or solid raft type the "Plate Theory" shall be adopted.
- 5.11 In normal circumstances minimum 100mm thick Plain cement concrete with 100mm projection all round in grade M.100 with coarse aggregate as metal shall be provided as levelling coarse. Where injuries soils or aggressive water are anticipated the leveling coarse shall be of grade not weaker than M.150 and if necessary sulphate resisting or other special cement shall be used and the thickness of the levelling coarse shall be kept not less than 150mm. The ground level within the foundation areas of the structure shall be consolidated properly with a suitable slope to drain out rainwater outside the foundation zone.
- 5.12 The foundation should be checked for negative pressure on soil due to combined direct and bending stress negative pressure shall not be allowed on the foundation soil.

6 DETAILING:

6.1 Minimum Reinforcement for Water Bearing Members:

The minimum reinforcement in walls, floors, roofs in area of 0.3% of the concrete section in that direction for sections up to 100mm thick. For section of thickness greater than 100mm but less than 450mm the minimum reinforcement in each of the two directions shall be linearly reduced from 0.3% for 100mm thick section to 0.2% for 450mm thick section. For 100mm thick

section to 0.2% for 450mm thick section. For sections of thickness greater than 450mm minimum reinforcement in each direction shall be kept at 0.3% in concrete sections of thickness 225mm or greater two layers of reinforcing steel shall be placed one over each face of the section to make up the minimum reinforcement specified in this clause.

6.1.1 The minimum reinforcement specified in 6.1 above may be decreased by 20% in case of high yield strength deformed bars conforming to IS:1786-1966 or IS:1139-1966.

6.2 Cover of Reinforcement:

6.2.1 Minimum clear cover to reinforcement shall be 40mm. Above durability of the structure except shaft where the clear cover shall be minimum 25mm.

6.2.2 For members of structure in contact with water effective cover shall not be more than 60mm for bars subjected to bending stresses. For bars subjected to pure tension the effective cover shall not be more than 75mm.

6.3 Spacing of Reinforcement:

6.3.1 Spacing of reinforcement shall be as per Para 25.3 of IS:456-1978.

Spacing of lateral ties for column shall satisfy the provision of Para 25.53.2 "C". Reinforcing steel, which accounts for resisting moments tension etc. i.e. other than temperature and shrinkage steel shall comprise of minimum 8 mm dia. for ribbed bars and 10mm dia for mild steel bars. For compressive members the minimum dia. of main reinforcement shall not be less than 12mm dia.

IMPORTANT NOTE


Reference of all IS Nos. will be as in the tender or its latest revision and as per Latest Specification of Bureau of India Standard.

GENERAL SPECIFICATIONS

1 DATA:

1.0 General specification for RCC OHT based on contractor's own design.

1.1 The tender is invited with contractor's design. The contractor shall prepare and submit along with the tender 'Inception Note' on design in the same cover that of tender. The successful contractor shall submit the detailed RCC design and drawings within 15 days of issue of acceptance letter.



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1.2 Data for preparation of Design of RCC OHT:

Sr. No.	Description	RCC Over Head Tank
1.	Capacity	2,25,000 liters
2.	Height	20m (up to bottom of container)
3.	Type of OHT	Intz Tank
4.	No. of OHT	One
5.	Safe allowable bearing pressure on soil of ESR	As per the actual site tests conducted by contractor.
6.	Seismic zone	As applicable and (Rly. Line nearby) As per IS-1893-1975 or latest version
7.	Wind intensity	As per Is:875 1964 or latest edition
8.	Diameter of pipes	As per enclosed details.
	Inlet pipe	100mm dia GI pipe - 2 Nos. per tank
	Outlet pipe	150 pipes CI - 1 No. per tank
	Overflow pipe	150mm dia CI pipe - 1 No. per tank
	Washout pipe	150mm CI - 2 Nos. per tank
9.	Length of pipes	
	Inlet & outlet pipes	Upto 50m along the GL per tank
	Washout & Overflow pipes	5m along the CL per tank
10.	CI Specials	As per requirement
11.	Chamber Size	1300x1300mm
12.	Other arrangement and details specification.	As per technical specifications.
13.	Sluice Valves : For inlet	100mm - 2 Nos. per tank
	For outlet	150mm - 2 Nos. per tank
	For washout	100mm - 2 Nos. per tank

2 GENERAL

- 2.1 The contractor shall quote the rate as per schedule of quantities for the complete construction work of RCC OHT to be carried out as per his own design based on above data including providing and fixing pipes, lightening conductor, CI manhole frame and cover, water level indicator, cowl type ventilators etc. complete with contractor's own design and drawings.
- 2.2 The contractor shall submit the name, qualifications and experience of Design Engineer who has prepared detailed RCC Design or will prepare Design and Drawings on acceptance of the Tender.
- 2.3 The Design Engineer has to prepare and submit the design calculations and drawings within 15 days of acceptance of the tender. However, along with the Tender an Inception Note on design of RCC OHT has to be prepared and submitted in the same cover duly signed and as per design criteria of RCC ESR.
- 2.4 The design of the lowest Tender or any other contractor whose tender is proposed to be finally accepted will be subject to thorough check by the Railways and Tender will be accepted by the competent authority.


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- 2.5 The Design Engineer will be required to attend the meeting at office of the Railway for preliminary discussion of scrutiny remarks etc whenever required with all reference data, books, IS specification etc at his own cost.
- 2.6 It will be the duty of the Design Engineer of the contractor to clarify, modify, redesign, finalize and submit the design and drawings as per scrutiny remarks offered by the Railways within 15 days of the issue of acceptance letter.
- 2.7 On approval of design, contractor shall supply free of cost eight sets of Design & drawings duly bound for the use of the Railways.
- 2.8 The instructions contained in Criteria or Design of RCC OHT shall be strictly followed and the contractor shall submit his design based on acceptance of these criteria on scrutiny. The Designer shall have to modify his design as per these criteria without any charge in the Tender cost submitted, if required. Earnest Money of the contractor stands forfeited if he fails to modify his design as per above criteria. The Tender amount quoted by the contractor shall be considered as final for completing the Plans & Design.
- 2.9 The contractor shall have to comply the remarks raised within 15 days from the date of intimation of remarks or earlier by the Railway.
- 2.10 Actual work order for construction will be given only on approval of Design of lowest or any other tenderer whose tender is accepted.

3 PETTY ITEM INCLUDED:

The ESR shall be provided with accessories and fixtures as mentioned above. Details given in technical specification shall be strictly followed and in addition the instructions contained in criteria for design of RCC OHT shall also be considered.

- 4 The hydraulic test of water retaining structure shall have to be given by the contractor without any extra cost. The filling of the reservoir shall be carried out gradually at the rate not exceeding 10 cms. Rise in water level per hour and not more than 30 cms of water shall be filled up in the tank per day and shall be preferably extended over a period of 72 hours. Records of leakage starting at different level of water in the reservoir if any shall kept. The reservoir once filled shall be allowed to remain field for seven days before any readings of drop in water level are recorded. The level of the water shall be recorded again at subsequent intervals of 25 hours over a period of seven days. The total drop in surface level over a period of seven days shall be taken as an indication of the water tightness of the reservoir, which for all practical purpose shall not exceed 40mm. If the structure does not satisfy the condition of test and the daily drop in water level is decreasing, the period of test may be extended for a period of seven days and if the specified limit is there than reached the structure may be considered as satisfactory.


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Tender Schedule

Schedule A						
Construction of RCC overhead tank of capacity 2.25 lac litres along with RCC sump near Vadodara yard area in connection with Mumbai Ahmedabad High Speed Railway Project.						
Sr. No.	Item No.	Description of NS Item	Unit	Qty.	Rate	Amount
1	NS/1	Design and construction of RCC overhead water tank of capacity 2.25 Lacs litres on 20 meter high RCC staging including all materials, labours, transportation etc. as per detailed specifications and special conditions. The rate includes architectural design & drawings, structural design, calculations & drawings, plumbing design and drawings based on the trial pit details, bearing capacity of soil and any other investigation required. The rate will also include the proof checking of all the drawings and designs from recognised Government Engineering college as per special conditions.	Litres	2,25,000	13.11	29,49,750.00
2	NS/2	Design and construction of 1 number of RCC sump of capacity 1,00,000 litres including all materials, labours, transportation etc. as per detailed specifications and special conditions. The rate includes architectural design & drawings, structural design, calculations & drawings, plumbing design and drawings based on the trial pit details, bearing capacity of soil and any other investigation required. The rate will also include the proof checking of all the drawings and designs from recognised Government Engineering college as per special conditions.	Litres	1,00,000	10.58	10,58,000.00
Total for Schedule A						40,07,750.00


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Schedule B						
Construction of RCC overhead tank of capacity 2.25 lac litres along with RCC sump near Vadodara yard area in connection with Mumbai Ahmedabad High Speed Railway Project.						
Sr. No.	Item No.	Description of USSOR Item	Unit	Qty.	Rate	Amount
1	11010 11011	Earth work in excavation as per approved drawings and dumping at embankment site or spoil heap, within railway land, including 50m lead and 1.5m lift, the lead to be measured from the centre of gravity of excavation to centre of gravity of spoil heap: the lift to be measured from natural ground level and paid for in layers of 1.5m each, including incidental work, as per specifications-in All kinds of soils	cum	35.5	109.36	3882.28
2	11070	Extra for every additional lift of 1.5m or part thereof, after the initial 1.5m, for earth work in all soils	cum	50	7.92	396.00
3	12010	Extra over item 011010 for excavation in foundations for buildings and bridges to cover dressing to neat dimension and plumbing sides etc. Note: Dressing under this item is payable for the total quantity of excavation in foundation and not partly	cum	50	12.5	625.00
4	12040	Filling, watering and ramming earth in 15 cm layers in floors and foundations with surplus earth from foundations including 50m lead and 1.5m lift	cum	120	26.6	3192.00
5	13120	Earthwork in filling in embankment, guide bunds, around buried type abutments, bridge gaps, trolley refuges, rain bunds if provided, platforms etc. With earth excavated from outside railway boundary entirely arranged by the contractor at his own cost as per RDSO's latest guidelines and specifications and special condition of contract including all leads, royalty, lifts, ascents, descents, crossing of nallahs or any other obstructions. The rates shall include all dressing of bank to final profile, demarcation and setting out of profile, site clearance, removing of shrubs, roots of vegetations growth, heavy grass, benching of existing slope of old bank, all handling/re-handling. Taxes, octroi and royalty etc. as a complete job. Cut trees shall be property of railways and to be deposited in the railway godown unless specified otherwise in the Special conditions of contract	cum	60	129.35	7761.00
6	13130	Extra for mechanical compaction of earth/blanketing material filled in embankment with contractor's rollers of suitable capacity, type and size to achieve specified density as per specification, testing as per IS codes incl. cost of water, T&P consumable material and all labour as a complete job. The work is to be executed as per Latest edition of "Guidelines for	cum	60	13.3	798.00

Sr. No.	Item No.	Description of USSOR Item	Unit	Qty.	Rate	Amount
		Earthwork in Railway Projects" issued by RDSO, Lucknow				
7	31010 31012	Providing and laying in position cement concrete of specified proportion excluding cost of cement, centring and shuttering - All works upto Plinth level : 1:3:6 (1 cement : 3 sand : 6 graded stone aggregate 40mm nominal size)	cum	10	1473.17	14731.70
8	31020 31023	Providing and laying cement concrete, up to plinth in retaining walls, walls (any thickness) including attached plasters, columns, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets etc, excluding the cost of cement and of shuttering, centring. 1:2:4 (1 cement : 2 sand : 4 graded stone aggregate 20mm nominal size)	cum	10	1645.73	16457.30
9	33062	Supply and using cement at worksite : OPC 53 grade	Tonne	35	4830	169050.00
10	41010 41012	Providing and laying in position M 20 Grade concrete for reinforced concrete structural elements but excluding cost of centring, shuttering, reinforcement and Admixtures in recommended proportion (as per IS:9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer in charge. All work in buildings above plinth level up to floor two level.	cum	20	2173.63	43472.60
11	42010 42013	Centring and shuttering including strutting, propping etc. and removal of form for : Suspended floors, roofs, landings, balconies, FOB slabs, walkway slabs and access platform	Sqm	616	303.84	187165.44
12	45010 45016	Supplying Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars	Kg	1500	57.94	86910.00
13	51010 51015	Brick work with non-modular bricks of class designation 7.5 in foundation and plinth in: Cement Mortar 1:6 (1 cement : 6 fine sand)	cum	30	2274.54	68236.20
14	51040	Extra over item 051010 for brick work in superstructure beyond plinth level upto floor two	cum	50	148.53	7426.50


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Sr. No.	Item No.	Description of USSOR Item	Unit	Qty.	Rate	Amount
15	81030 81031	Structural steel work welded in built up sections, trusses and framed work, girders, staging, racks, etc. including cutting, bending, straightening, hoisting, fixing in position, including applying a priming coat of approved steel primer, complete - upto 6m height above GL In RSJ, tees, angles and channels	Kg	1000	75.92	75920.00
16	81030 81032	Structural steel work welded in built up sections, trusses and framed work, girders, staging, racks, etc including cutting, bending, straightening, hoisting, fixing in position, including applying a priming coat of approved steel primer, complete - upto 6m height above GL In flats, plates , round or square bars	Kg	1000	73.32	73320.00
17	111010 111012	12 mm cement plaster of mix - 1:6 (1cement: 6fine sand)	Sqm	600	60.27	36162.00
18	111110	18 mm cement plaster in two coats under layer 12mm thick cement plaster 1:5 (1cement: 5coarse sand) finished with a top layer 6mm thick cement plaster 1:6 (1cement: 6fine sand)	Sqm	450	96.33	43348.50
19	115060	Applying one coat of cement primer of approved brand and manufacture on wall surface	Sqm	800	25	20000.00
20	115160	Finishing walls with Acrylic Smooth exterior paint with Silicone additives of required shade on new work (Two or more coats applied @ 1.67ltr/10 sqm over and including one coat of water proofing cement paint applied @ 2.20 kg/10sqm	Sqm	800	57.4	45920.00
21	121050 121051	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade Two or more coats on new work	Sqm	40	47.36	1894.40
22	131120 131122	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) Large diameter pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching, refilling and testing of joints complete as per direction of Engineer-in-Charge. External work (higher dia) 100mm nominal outer dia. Pipes	Metre	400	2196.45	878580.00
23	131150 131156	Providing and fixing medium grade G.I. pipes complete with G.I. fittings including trenching and refilling etc. External Work 50 mm dia. nominal bore	Metre	700	369.36	258552.00
24	132030 132034	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) 50 mm nominal bore	Each	20	640.28	12805.60

Sr. No.	Item No.	Description of USSOR Item	Unit	Qty.	Rate	Amount
25	133100 133102	Providing and laying S&S Centrifugally Cast (Spun) Ductile Iron Pipes conforming to IS : 8329 of Class K-9 up to 500 mm dia 150mm dia Ductile Iron Class K - 9 pipes	Metre	200	1250.09	250018.00
26	133100 133105	Providing and laying S&S Centrifugally Cast (Spun) Ductile Iron Pipes conforming to IS : 8329 of Class K-9 up to 500 mm dia 300mm dia Ductile Iron Class K - 9 pipes	Metre	600	3026.91	1816146.00
27	133220 133222	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. 150 mm dia (the tail pieces if required will be paid separately) Class II	Each	10	4296.72	42967.20
28	133250 133252	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. 300 mm dia (the tail pieces if required will be paid separately) Class II	Each	10	11284.95	112849.50
29		Miscellaneous Work				500000.00
		Total for Schedule B				47,78,587.22
		Add. 07.10% as per LAR				3,39,279.69
		Total Amount				51,17,866.91


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Schedule-Construction of RCC overhead tank of capacity 2.25 lac litres along with RCC sump near Vadodara yard area in connection with Mumbai Ahmedabad High Speed Railway Project.

OFFER SHEET

Sr. No.	Schedule	Cost of Schedule in Rs. Ps.	RATE QUOTED BY THE TENDERER	
			In Figures	In Words
1	Schedule "A" (NS ITEMS)	40,07,750.00	_____	_____
			%age Above/Below/At par*	%age Above/Below/At par*
2	Schedule "B" (USSOR 2011 ITEMS)	51,17,866.91	_____	_____
			%age Above/Below/At par*	%age Above/Below/At par*


* Strike whichever is not applicable (above/below/At par)

NOTES: -

1. If the tenderer is not clearly mentioning that the rates "Above, Below or At par", or kept blank then the rates shall be considered as ambiguous. and the offer will be summarily rejected.
2. In case of any discrepancy in the quoted rates in between the rates quoted in words and figures, the rates quoted on lower side shall be considered.
3. Tenderer(s) is/are requested to quote rates as single percentage for the entire each schedule, If rates are quoted item-wise, in a particular schedule the offer will not be considered.
4. Height of RCC overhead tank is 20 m from ground level, however if required by Railways/NHRCL, the height may be increased up to 22 m.
5. The above cost is exclusive of GST. GST will be paid on actual basis by NHRCL.
6. The agency must not have been debarred by any Govt. sector/PSUs/bilateral and multilateral agency, Tenderer should submit a notarised affidavit in support of above declaration.

Signature of Tenderer

Date: - _____


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