EAST CENTRAL RAILWAY
[CONSTRUCTION ORGANISATION]
[DY. CE/CON/I/DANAPUR UNIT]

START OF TENDER DOCUMENT

of

e-Tender Document

e-Tender no. ECR-CON-DNR-I-01-26-27

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Office of the Dy. Chief Engineer/ Con/ I
East Central Railway, Danapur

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CHAPTER-1

TOP SHEET

1.	e- Tender No.	**ECR-CON-DNR-I-01-26-27**
2.	Bidding System.	Two Packet System
3.	**Name of Work:**	**Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.**
4.	**Approximate Value of Tender**	Rs. 319880499.21
5.	Bid Security	Rs.6397600.00
6.	Dy. Chief Project /Con unit	DNR-I
7.	Chief Engineer/Con	GB/MHX
8.	Permissibility of Participation of Joint Venture Firms	Applicable
9.	Applicability of Price Variation Clause	Applicable
10.	Bid capacity	Applicable
11	Similar Nature of work	Any Civil Engineering work involving building works & structural steel work
12.	Completion period	12 (Twelve) Months
13.	Validity of tender from the date of closing.	90 days
14.	Mobilization advance	Not Applicable
15.	Performance Guarantee	Applicable
16.	Incentive bonus	Not Applicable
17.	Stage payment on supply of steel	Applicable
18'	Pre bid conference	No
19.	Estimate No. and Allocation No.	Contingency of Estt. No 01/DCE/C/DNR of 2009-10, 03/ CAO/con/ECR of 2019-20, 10/CAO/Con/ECR of 2001-02, 07/CAO/Con/ECR of 2019-20, 13/CAO/Con/ECR of 2024-25, 11/CAO/Con/ECR of 2017-18, 05/CAO/Con/ECR of 2023-24, 09/CAO/Con/ECR of 2024-25, 16/CAO/Con/ECR or 2025-26, 33/CAO/Con/ECR of 2015-16, 02/CAO/Con/ECR of 2024-25 & 09/CAO/Con/ECR of 2023-24, Allocation no. 20-1190-03, 20-1190-03, 20-1190-03, 20-1190-03, 20-1190-03, 20-1590-03, 20-1590-03, 20-1590-03, 20-1590-03, 20-1590-03, 20-1590-03, 20-1690-03 respectively.
20.	Location of work [Dist/State]	Near Railway station Danapur, District:-Patna, State-Bihar
21.	Special Instructions, if any	Clause 19 & 20 of Chapter-2 & Clause 1.7 of Chapter-4 of tender document [**Measurement of work by contractor in Works contract (Applicable to tender value Rs 05 (Five) crores or more]**
22.	Date and Time of closing	10.07.2026 up to 15.30 hrs.
23.	Postal Address for correspondence	Dy. CE/Con/I/DNR, Office of the Dy. Chief Engineer/Con/I/DNR, DRM Office CAMPUS, East Central Railway, Danapur, Khagaul, Pin- 801105. Mobile No. 9771460222.

DEEPAK KUMAR Digitally signed by DEEPAK KUMAR Date: 2026.06.18 13:05:32 +05'30'

SUDHIR KUMAR SINGH Digitally signed by SUDHIR KUMAR SINGH Date: 2026.06.18 13:25:05 +05'30'

PRATEEK RASTOGI Digitally signed by PRATEEK RASTOGI Date: 2026.06.18 13:33:07 +05'30'

पूर्व मध्य रेल,
(निर्माण संगठन)

INSTRUCTIONS TO TENDERER [ITT]

1. All mandatory fields marked with [*] have to be filled in by the bidders.

2. The E-Tender document shall consist of: -

(a) Annexed Document to the Tender Document which includes-

(i) Top Sheet [Chapter-1],

(ii) Instructions to Tenderer[s] [Chapter-2],

(iii) Eligibility Criteria [Chapter-3],

(iv) General Conditions of Contract [Chapter-4],

(v) Special Conditions of Contract [Chapter-5],

(vi) Addl. Special Conditions of Contract i.e. Technical Conditions [Chapter-6]

***GENERAL GUIDELINES REGARDING SPECIFICATIONS AND DETAILED SCOPE OF WORK**

(vii)Guidelines for participation of JV Firms, MOU for JV Participation and JV Agreement [Chapter-7] and

[viii] Annexure A to O [Chapter-8]

Indian Railways Standard General Conditions of Contract April-2022with correction slips up to the date of inviting tender or as otherwise specified in the tender documents.

Standard Schedule of Rates (SSOR) shall mean the schedule of Rates adopted by the Railway, which includes-

"Unified Standard Schedule of Rates of the Railway (ECR-USSOR-21)" i.e., the Standard Schedule of Rates of the Railway issued under the authority of the Chief Engineer from time to time, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents;

"Delhi Schedule of Rates (DSR-21)" i.e. the Standard Schedule of Rates published by Director General/Central Public Works Department, Government of India, New Delhi, as adopted and modified by the Railway under the authority of the Chief Engineer from time to time, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.

Techno- Commercial offer Form.
Financial offer Form.

3. 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 April,2022 with correction slips up to the date of inviting tender or as otherwise specified in the tender documents for the completion of works

to the entire satisfaction of the Engineer as available on the page of East Central Railway [Construction] on the web site www.ireps.gov.in.

4. **Applicability:** These instruction and conditions of contract shall be applicable for all the tenders and contracts of railways for execution of 'Works' as defined in GFR 2017.

5. **Order of Precedence of Documents:** In a contract agreement, in case of any difference, contradiction, discrepancy, with regard to Conditions of tender/contract, Specifications, Drawings, Bill of quantities etc., forming part of the tender/contract, the following shall be the order of precedence:

   (i) Letter of Award
   (ii) Bills(s) of Quantities
   (iii) Special Conditions of Contract
   (iv) Technical Specifications as given in tender documents
   (v) Drawings
   (vi) Indian Railways Standard General Conditions of Contract updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
   (vii) Indian Railways Unified Standard Specification (IRUSS-2019) updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
   (viii) CPWD Specifications 2019 Vol I & II updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
   (ix) Indian Railways Unified Standard Specifications (Works and Material) 2010 updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
   (x) IR Specifications/Guidelines updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
   (xi) Relevant B.I.S. Codes updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.

6. General Conditions of Contract, Special Conditions of Contract, Additional Special Conditions of Contract i.e., Technical Conditions etc. as available on the page of East Central Railway [Construction] on the web site www.ireps.gov.in.

7. Your digital signature on the e-tender form will be considered as your confirmation that you have read and accepted all the conditions laid down in the documents referred in Para 3.0 above as well as schedule of tender consisting of techno-commercial offer form [including special conditions attached to E-Tender] and financial offer form, unless specific deviation is quoted in the techno-commercial offer form.

8. In respect of e-tendering, payment of Bid Security Deposit will be accepted through net banking or payment gateway or BG Bond as per annexure- N.

Note: -Fixed Deposit Receipt [FDR] will not be accepted as Bid security for tenders invited on IREPS [e-tender portal]

9. Time of availability of tender document on website: www.ireps.gov.in is divided into two parts viz, Advertisement period and offer submission period as detailed below: -

(a) Advertisement Period: -Time during which all information pertaining to tender shall be available but offers cannot be submitted.

(b) Offer submission period: - Fifteen (15) days prior to opening of tender, during which tenderers can submit their offer.

The prospective tenderers are advised to revisit the website www.ireps.gov.in

10. Within advertisement period to look for any changes/corrigendum issued for the tender. In the offer submission period, no any changes will be issued for the tender.

Within advertisement period to look for any changes/corrigendum issued for the tender. In the offer submission period, no any changes will be issued for the tender. No Manual Offers sent by Post/FAX or in person shall be accepted against such e-tenders, even if these are submitted on the firm's letter head and received in time. The manual offer uploaded as attached document shall not be considered also. All such manual offers shall be considered as in-valid offers and shall be rejected summarily without any consideration.

11. E-tender is not transferable and the same is to be submitted with digital signature by the pre-authorized personnel of the tenderer, already registered with the site.

12. If the required information asked for in the tender document is not furnished, the tender will be otherwise treated incomplete and hence will not be considered.

13. The on-line bidding doesn't permit submission of offer after stipulated date and time of the e-tender. Hence there is no scope for late/ delayed tenders.

14. Date of inviting tender shall be the date of publishing tender notice on IREPS website if tender us published on website or the date of publication in newspaper in case tender is not published on website.

15. In case of Two Packet of bidding, after scrutinizing the Techno-Commercial offer and short listing the tenderers, the Financial Bid shall be opened on a subsequent date only for those tenderers who will be qualifying Techno-Commercial Offers as per eligibility/qualifying criteria laid down. The date of opening of Financial Bid will be advised online. The Railway's decision in this regard will be final.

16. Partnership Deeds, Power of Attorney Etc.: GCC April/2022. (Para. 14)

(A) The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / company / Joint Venture (JV) / Registered Society / Registered Trust/Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP). The tenderer(s) shall enclose the attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be.

(B) Following documents shall be submitted by the tenderer:

(a) Sole Proprietorship Firm:

(i) All documents in terms of Para 10 of the tender form (second sheet) of GCC April 2022.,

(b) HUF:

(i) A copy of notarized affidavit on Stamp Paper declaring that he who is submitting the tender on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

(ii) All other documents in terms of Para 10 of the tender form (second sheet) of GCC April 2022.

(c) Partnership Firm:

(i) All documents as mentioned in Para 18 of the Tender form (second sheet) of GCC April 2022.

(d) Joint Venture (JV): All documents as mentioned in Para 17 of the tender form (second sheet) of GCC April 2022.

(e) Company registered under Companies Act 2013:

(i) The copies of **MOA (Memorandum of Association) / AOA (Articles of Association)** of the company.

(ii) A copy of Certificate of Incorporation

(iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.

(iv) All other documents in terms Para 10 of the tender form (second sheet) of GCC April 2022.

(f) LLP (Limited Liability Partnership):

(i) A copy of LLP Agreement

(ii) A copy of Certificate of Incorporation

(iii) A copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP.

(iv) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were /are partners/members. Concealment /wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.

(v) All other documents in terms Para 10 of the tender form (second sheet) of GCC April 2022.

(g) Registered Society & Registered Trust:

(i) A copy of Certificate of Registration

(ii) A copy of Memorandum of Association of Society/Trust Deed

(iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create

(iv) A copy of Rules & Regulations of the Society

(v) All other documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC April 2022 above.

(C) If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm / Partnership firm / Joint Venture / Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.

(D) After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm/Partnership Firm / Registered Company/ Registered Trust /Registered Society/HUF/LLP etc. shall be neither asked nor considered, if submitted. Further, no suo-moto cognizance of any document available in public domain (i.e., on internet etc.) or in Railway's record/office files etc. will be taken for consideration of the tender, if no such mention is available in tender offer submitted.

(E) A tender from JV / Partnership firm etc. shall be considered only where permissible as per the tender conditions.

17. The Railway will not be bound by any change of power of attorney or in the composition of the firm made subsequent to the submission of tender. Railway may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

The tenderer whether sole proprietor/ a company or a partnership firm / /registered society / registered trust/HUF/LLP etc. if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender, submit the tender and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed/Memorandum of Understanding/Article of Association/Board resolution, failing which tender shall be summarily rejected.

A separate power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, shall be submitted after award of work, specifically authorizing him/them to deal with all other contractual activities subsequent to signing of agreement, if required.

Note: *A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.*

18. Employment/Partnership etc. of Retired Railway Employees:

(a) Should a tenderer

i) be a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, OR

ii) being partnership firm / joint venture (JV) / registered society / registered trust etc have as one of its partners/members a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, OR

iii) being an incorporated company have any such retired Engineer of the gazetted rank or any other gazetted officer working before his retirement as one of its directors

AND

In case where such Engineer or officer had not retired from government service at least 1 year prior to the date of submission of the tender

THEN

the tenderer will give full information as to the date of retirement of such Engineer or gazetted officer from the said service and as to whether permission for taking such contract, or if the Contractor be a partnership firm or an incorporated company, to become a partner or director as the case may be, has been obtained by the tenderer or the Engineer or officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender.

(b) In case, upon successful award of contract, should a tenderer depute for execution of the works under or to deal matters related with this contract, any retired Engineer of gazette rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, and now in his employment, then the tenderer will ensure that retired Engineer or retired gazetted officer had retired from government service at least 1 year prior to the date of his employment with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorized by him in this behalf, to get associated with the tenderer.

(c)Should a tenderer or Contractor being an individual, have member(s) of his family or in the case of partnership firm/ company / joint venture (JV) / registered society / registered trust etc. one or more of his partner(s)/shareholder(s) or member(s) of the family of partner(s)/shareholder(s) having share of more than 1% in the tendering entity employed in gazetted capacity in the Engineering or any other department of the railway, then the tenderer at the time of submission of tender, will inform the authority inviting tenders the details of such persons.

Note: -If information as required as per 18.a), b), c) above has not been furnished, contract is liable to be dealt in accordance with provision of clause 62 of Standard General Condition of Contract.

19. Tenderer[s] should upload a scanned attested BARCHART, activity-wise detailed programme to complete the work.

20. No correspondence shall be entertained after opening of tender and any suo-moto letters or submission in regard to tender, except specifically mentioned to be submitted as per the terms of the tender or sought for by the Railway, shall be treated as Null and Void.

21. The **tenderer[s] must fulfill/satisfy the following mandatory requirements:**

(A) Tender Form: Tender Forms shall embody the contents of the contract documents either **directly or by reference and shall be as per specimen form, Annexure-I of GCC April 2022. e-Tender Forms shall be issued free of cost to all tenderers.**

(B) Payment of **Bid Security will be accepted through net banking or BG bond from schedule, commercial bank of India or payment gateway only**

Note: Fixed deposit receipt (FDR) will not be accepted as Bid security for tenders invited on IREPS (e-tender portal).

(C) The tenderer shall submit along with the tender document, documents in support of his/their claim to fulfil the eligibility criteria as mentioned in the tender document. Each page of the copy of documents/certificates in support of credentials, submitted by the tenderer, shall be self-attested/digitally signed the tenderer or authorized representative of the tendering firm.

(D) Self-attestation shall include signature, stamp and date (on each page). Only those documents which are declared explicitly by the tenderer as "documents supporting the claim of qualifying the laid down eligibility criteria", will be considered for evaluating his/their tender.

(E) Scanned copies of documents in support of formation/registration of the company/firm/legal authorization of the person to deal with the tender/notarized/registered wherever required as per tender conditions are to be submitted.

(F) Certified copies of Partnership Deed, Power of Attorney duly stamped and authenticated Notary Public.

(G) The tenderers shall submit a copy of certificate submitted by tenderer stating that all their statements/documents submitted along with bid is true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-7 of chapter 5/Annexure M & Annexure 7A of chapter 5/Annexure M(I). In addition to Annexure-7, in case of other than Company/Proprietary firm, Annexure -7(A) shall also be submitted by each member of a partnership Firm / Joint Venture (JV)/Hindu Undivided Family (HUF)/ Limited Liability Partnership (LLP) etc**. as the case may be. <u>Non submission of above certificate by the bidder shall result in summarily rejection of his/their bid</u>. It shall be mandatorily incumbent upon the tenderer to identify state and submit the supporting documents duly self-attested/digitally signed by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document.**

(H) Bid Capacity: Applicable (For advertised value above 10 Cr.)

For tenders having advertised value more than Rs 10 crore wherein eligibility criteria include Bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid value of the present tender. The available bid capacity shall be calculated as under:

Available Bid Capacity = [A x N x 2] – 0.33xNxB Where,

A = Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender), taking into account the completed as well as works in progress.

N= Number of years prescribed for completion of work for which bids has been invited.

B = Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started up to the date of inviting of tender.

Note:

a) The Tenderer(s) shall furnish the details of-

(i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) for calculating A, and

(ii) Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started up to the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished.

The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.

b) In case if a bidder is JV, the tenderer(s) must furnish the details of

(i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) by each member of JV for calculating A, and

(ii) Existing commitments and balance amount of ongoing works with each member of JV either in individual capacity or as a member of other JV as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to each member of JV either in individual capacity or as a member of other JV but yet not started up to the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished.

The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.

(c) Value of a completed work/work in progress/work awarded but yet not started for a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned bid capacity in the tender under consideration.

(d) The arithmetic sum of individual "bid capacity" of all the members shall be taken as JV's "bid capacity".

(e) **In case, the tenderer/s failed to submit the above statement along with offer, their/his offer shall be considered as incomplete and will be rejected summarily**.

(f) The available bid capacity of tenderer shall be assessed based on the details submitted by the tenderer. In case, the available bid capacity is lesser than estimated cost of work put to tender, his offer shall not be considered even if he has been found eligible in other eligibility criteria/tender requirement.

22. For Tender having work of purely "Flash butt welding for different Dy. CE/C/Cons under CAO/Con/South/,E.C. Railway, MHX- **Not Applicable**.

23. Tenderers are advised to be conversant with the USSOR specification and USSOR rate of E.C. Railway 2021 issued by GM/Engg. E.C. Railway, Hajipur, DSR-21& DSR-2020(Horticulture & Landscaping) as these are applicable in most of the works/items.

24. In tenders of special nature like in-situ flash butt welding, fabrication and launching of steel girder, box pushing, epoxy grouting in distressing bridges, sinking of tube well etc. Contractors are quoting special conditions. [Contractors may be quoting their own

condition and, in such cases, the contractor's offer should not be summarily rejected because of quoting conditions/clarification by the tenderers along with the tender. However, this should be properly evaluated and considered with the extent possible provisions of Railway and such conditions should not be considered as **"Conditional tender"].**

(a) When work is tendered for by a firm or company, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.

(b) The Railway will not be bound by any power of attorney granted by the tenderer or by 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 advice, the cost of which will be chargeable to the Contractor.

25. 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 there to by the concerned state Govt. and submit certificate of Registration issued from the Registering Officer of the concerned state Govt. [Labour Deptt]. The cess shall be deducted from contractor's bills as per provisions of the act.

26. <u>False/incomplete statement:</u>

(a) The Railway reserves the right to verify all statements, information, and documents submitted by the bidder in hiss tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any right of the railway there under.

(b) In case of any information submitted by tenderer is found to be false, forged or incorrect at any time during process for evaluation of tender, it shall lead to forfeiture of the tender Bid security besides banning of business for a period of up to two years.

(c) In case of any information submitted by tenderer is found to be false, forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security available with the railway shall be forfeited. In addition, other dues of the contractor, if any under this contract shall be forfeited and agency shall be banned for doing business for a period of up to two years.

27. Special Conditions:

(a) The copies of the various letters/documentary proof/statement etc. must be uploaded with e-Tender and shall be properly indexed by indicating the Annexure Nos. like Annexure-I, Annexure-2 etc. on the right-hand side top corner of the same and this Annexure No. shall also be indicated in relevant column of the Annexure-A to Annexure-N supplied to the tenderer with the Technical and Commercial Offers.

(b) The bidders are expected to obtain, on their own responsibility and expenses, all information which will be necessary for submitting the bid. Intending bidders may obtain clarification, if any, with regard to the tenders from the office of the concerned **Dy**. **Chief Engineer/Con/I/DNR, East Central Railway, Danapur** [as mentioned in the Top Sheet] on any working day during the working hours. For any further information in regard to site conditions, facilities available at the work spot etc., the bidder may contact the office

of concerned **Deputy Chief Engineer/Con 1/DNR, East Central Railway, Danapur** [as mentioned in the Top Sheet]**,** on any working day during the working hours.

(c) In addition to the information given in the prescribed form of the Technical and Commercial Offer, the tenderer may also submit any additional relevant information connected with this tender if considered necessary, uploading copies of the documents relied upon.

(d) Submission of Tender does not bind the Railway Authority for any claim of any nature whatsoever.

(e) **Updation of Labour data on Railways Shramikkalyan portal by contractor:**

In order to ensure prompt and proper uploading of details related to LOAs, engaged workmen, wage & other payment details, Railways/Pus etc. shall introduce a special condition in their tender document .

The special condition is as under:

(i) Contractor is to abide by the provisions of payment of various labour laws in terms of clause 54 and 55, 55-A and 55-B of Indian Railways General Condition of Contract. In order to ensure the same, an application has been developed and hosted on website www.shramikkalyan.indianrailways.gov.in. Contractor shall register his firm/company etc. and uploaded requisite details of labour and their payment in this portal. These details shall be available in public donation. The Registration/updation of portal shall be done as under:

Contractor shall apply for on time registration of his company/firm etc. in the Shramik kalyan portal with requisite details subsequent to issue of letter of acceptance engineer shall approve the contractor's registration on the portal within 7 days of receipt of such request.

(a) Contractor once approved by any engineer, can create password with login ID (PAN No.) for subsequent use of portal for all LOAs issued in his favour.

(b) The contractor once registered on the portal, shall provide details of his letter acceptance (LA)/Contract agreements on shramikkalyan portal within 15 days ……any LOA for approval of concerned engineer. Engineer shall date (if required) and approve the details of LOA filled by contractor within 7 days of receipt of such request.

(c) After approval of LOA by engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on shramikkalyan portal basis.

(d) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour& payments made thereof after each wage period.

While processing payment of any On Account bill or Final bill or release of Advance or Performance Guarantee/Security deposit, contractor shall submit a certificate to the engineer or engineer's representatives that : I have uploaded the correct details of contract labours engaged in connection with this contract and payments

made to them during the wage period in Railway's Shramikkalyan portal at www.shramikkalyan .indianrailways.gov.in till.....Month...year.
(Railway Board letter no. 2018/CE-I/CT/4 dated 17.10.2018)

28. Tenderers are advised to be conversant with the USSOR specification and USSOR rate of E.C. Railway 2021 issued by E.C. Railway, Hajipur& DSR-21 as these are applicable in most of the works/items.

29. Scanned copies of Partnership Deed, Power of Attorney duly stamped and authenticated Notary Public, documents related to Joint Venture/MOU/Consortium duly notarized should be uploaded along with their offer.

30. False/incomplete statement:

(a) The Railway reserves the right to verify all statements, information, and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any right of the railway there under.

(b) In case of any information submitted by tenderer is found to be false, forged or incorrect at any time during process for evaluation of tender, it shall lead to forfeiture of the tender Bid security besides banning of business for a period of up to two years.

(c) In case of any information submitted by tenderer is found to be false, forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security available with the railway shall be forfeited. In addition, other dues of the contractor, if any under this contract shall be forfeited and agency shall be banned for doing business for a period of up to two years.

पूर्व मध्य रेल,
(निर्माण संगठन)

ELIGIBILITY CRITERIA

E-tender notice no. e-Tender no. ECR-CON-DNR-I-01-26-27

E-TENDER IS INVITED ON BEHALF OF THE PRESIDENT OF INDIA FOR THE UNDER MENTIONED WORKS

SN	Name of work	Approximate cost [Rs]	Time of completion	Bid Security (Rs.)	Date and Time of closing
1	**Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.**	Rs 319880499.21	12 (Twelve) Months	Rs.6397600.0	**10.07.2026** at **15.30 hrs.**

Note: -

1. **In respect of e-tendering, payment of Bid Security will be accepted through net banking or BG bond from schedule, commercial bank of India or payment gateway only.**
2. **Deposit Receipt [FDR] will not be accepted as Bid Security or tenders invited on IREPS [e-tender portal].**

1.0 Contractors who have adequate experience and resources to adhere to the specifications and completion schedule should participate in this tender.

2.0 **Eligibility criteria Fixed for participation in the Tender:** -

Tenderer[s] must fulfil/satisfy the following eligibility criteria for participating in this tender and for consideration of their offers.

2.1 **Technical Eligibility Criteria:`**

(a)	The tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:
	(i) Three similar works each costing not less than the amount equal to 30% of advertised value of the tender,

DEEPAK KUMAR Digitally signed by DEEPAK KUMAR Date: 2026.06.18 13:07:39 +05'30'

SUDHIR KUMAR SINGH Digitally signed by SUDHIR KUMAR SINGH Date: 2026.06.18 13:26:10 +05'30'

PRATEEK RASTOGI Digitally signed by PRATEEK RASTOGI Date: 2026.06.18 13:34:24 +05'30'

	or (i) Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or (ii) One similar work costing not less than the amount equal to 60% of advertised value of the tender.
(b)1	*In case of tenders for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed or substantially completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:*
	(i) Three similar works each costing not less than the amount equal to 30% of advertised value of each component of tender, *or* *(ii) Two similar works each costing not less than the amount equal to 40% of advertised value of each component of tender,* *or* *(iii) One similar work each costing not less than the amount equal to 60% of advertised value of each component of tender.*
	Note for b(1): Separate completed works of minimum required values shall also be considered for fulfilment of technical eligibility criteria for different components.
(b)2	In such cases, what constitutes a component in a composite work shall be clearly pre-defined with estimated tender cost of it, as part of the tender documents without any ambiguity.
(b)3	To evaluate the technical eligibility of tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of work covered in other remaining components shall be either executed by tenderer himself if he has work experience as mentioned in clause 7 of the Standard General Conditions of Contractor through subcontractor fulfilling the requirements as per clause 7 of the Standard General Conditions of Contractor jointly i.e., partly himself and remaining through subcontractor, with prior approval of Chief Engineer in writing. However, if required in tender documents by way of Special Conditions, a formal agreement duly notarized, legally enforceable in the court of law, shall be executed by the main contractor with the subcontractor for the component(s) of work proposed to be executed by the subcontractor(s), and shall be submitted along with the offer for considering subletting of that scope of work towards fulfillment of technical eligibility. Such subcontractor must fulfill technical eligibility criteria as follows: The subcontractor shall have successfully completed at least one work similar to work proposed for subcontract, costing not less than 35% value

	of work to be subletted, in last 5 years, ending last day of month previous to the one in which tender is invited through a works contract. Note: for subletting of work costing up to Rs 50 lakh, no previous work experience of subcontractor shall be asked for by the Railway. In case after award of contract or during execution of work it becomes necessary for contractor to change subcontractor, the same shall be done with subcontractor(s) fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract, with prior approval of Chief Engineer in writing. Note for item- 2.1) Work experience certificate from private individual shall not be considered. However, in addition to work experience certificates issued by any Govt. Organization, work experience certificate issued by Public listed company having average annual turnover of Rs. 500 crore and above in last 3 financial years excluding the current financial year, listed on National stock Exchange or Bombay stock Exchange, incorporated/ registered at least 5 years prior to the date of closing of tender, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issued such certificates. In case tenderer submits work experience certificate issued by public listed company, the tenderer shall also submit along with work experience certificate, the relevant copy of work order, bill of quantities, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate.
2.2	**Financial Eligibility Criteria:**
	The tenderer must have minimum average annual contractual turnover of V/N or 'V' whichever is less; where V= Advertised value of the tender in crores of Rupees N= Number of years prescribed for completion of work for which bids have been invited. The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years, as per the audited balance sheet. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover. The tenderers shall submit requisite information **as per Annexure-C**, *along* with copies of Audited Balance Sheets duly certified by the Chartered

	Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.
2.3	**Bid Capacity: Applicable for works costing more than ₹10 cr.**
	TENDERER'S CREDENTIALS (BID CAPACITY) For tenders having advertised value more than Rs 10 crore wherein eligibility criteria include bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid value of the present tender. The available bid capacity shall be calculated as under: Available Bid Capacity = [A x N x 2] – 0.33xNxB Where, A = Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender), taking into account the completed as well as works in progress. N= Number of years prescribed for completion of work for which bids has been invited. B = Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started up to the date of inviting of tender.
(a)	Note: The Tenderer(s) shall furnish the details of- (i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) for calculating A and (ii) Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started up to the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished. The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.
(b)	In case if a bidder is JV, the tenderer(s) must furnish the details of (i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) by each member of JV for calculating A, and (i) Existing commitments and balance amount of ongoing works with each member of JV either in individual capacity or as a member of other JV as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to each member of JV

	either in individual capacity or as a member of other JV but yet not started up to the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished. The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.
(c)	Value of a completed work/work in progress/work awarded but yet not started for a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above-mentioned bid capacity in the tender under consideration.
(d)	The arithmetic sum of individual "bid capacity" of all the members shall be taken as JV's "bid capacity".
(e)	In case, the tenderer/s failed to submit the above statement along with offer, their/his offer shall be considered as incomplete and will be rejected **summarily**.
(f)	The available bid capacity of tenderer shall be assessed based on the details submitted by the tenderer. In case, the available bid capacity is lesser than estimated cost of work put to tender, his offer shall not be considered even if he has been found eligible in other eligibility criteria/tender requirement.
2.4	**No Technical and Financial credentials are required for tenders having advertised value up to Rs. 50 lakh**.
2.5	Credentials if submitted in foreign currency shall be converted into Indian currency i.e., Indian Rupee as under: - The conversion rate of US Dollars into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India or entity authorized by RBI to do so for the relevant date or immediately previous date for which rates have been published for the relevant date. Where, relevant date shall be as on the last day of month previous to the one in which tender is invited. In case of any other currency, the same shall first be converted to US Dollars as on the last day of month previous to the one in which tender is invited, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date or immediately previous date for which rates have been published
**	**Explanation for clause 2 including clause 2.1 to 2.5 - Eligibility Criteria:**
1.	Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value (excluding the payment made for adjustment of Price variation (PVC), if any) has been made to the contractor in that ongoing contract and no proceedings of termination of contract on Contractor's default has been initiated. The credential

	certificate in this regard should have been issued not prior to 60 days of date of invitation of present tender.
2.	In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfillment of credentials.
3.	If a work is physically completed and completion certificate to this extent is issued by the concerned organization but final bill is pending, such work shall be considered for fulfillment of credentials
4.	In case of completed work, the value of final bill (gross amount) including the PVC amount (if paid) shall be considered as the completion cost of work. In case final bill is pending, only the total gross amount already paid including the PVC amount (if paid) shall be considered as the completion cost of work. In case of substantially completed work, the total gross amount already paid including the PVC amount (if paid), as mentioned in the certificate, shall be considered as the cost of substantially completed work.
5.	If a bidder has successfully completed a work as subcontractor and the work experience certificate has been issued for such work to the subcontractor by a Govt. Organization or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet), the same shall be considered for the purpose of fulfillment of credentials.
6.	In case a work is considered similar in nature for fulfillment of technical credentials, the overall cost including the PVC amount (if paid) of that completed work or substantially completed work, shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.
7.	In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of 0.3*0.2*value of the work done in the previous entity. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s)etc.
8.	In case of existing partnership firm, if any one or more partners quit the partnership firm, the credentials of remaining partnership firm shall be re-worked out i.e., the quitting partner(s)shall take away his credentials to the

	extent of his share on the date of quitting the partnership firm (e.g. in a partnership firm of partners A, B & C having share 30%, 30% & 40% respectively and credentials of Rs. 10 crores; in case partner C quits the firm, the credentials of this partnership firm shall remain as Rs. 6 crore). For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s)etc.
9.	In case of existing partnership firm if any new partner(s) joins the firm without any modification in the name and PAN/TAN no. of the firm, the credentials of partnership firm shall get enhanced to the extent of credentials of newly added partner(s) on the same principles as mentioned in item 6 above. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deeds, dissolution/splitting deeds and proof of surrender of PAN No.(s) in case of dissolution of partnership firm etc.
10.	Any partner in a partnership firm cannot use or claim his credentials in any other firm without leaving the partnership firm i.e., In a partnership firm of A&B partners, A or B partner cannot use credentials of partnership firm of A&B partners in any other partnership firm or propriety firm without leaving partnership firm of A&B partners.
11.	In case a partner in a partnership firm is replaced due to succession as per succession law, the proportion of credentials of the previous partner will be passed on to the successor.
12.	If the percentage share among partners of a partnership firm is changed, but the partners remain the same, the credentials of the firm before such modification in the share will continue to be considered for the firm as it is without any change in their value. Further, in case a partner of partnership firm retires without taking away any credentials from the firm, the credentials of partnership firm shall remain the same as it is without any change in their value.
13.	In a partnership firm “AB” of A&B partners, in case A also works as propriety firm “P” or partner in some other partnership firm “AX”, credentials of A in propriety firm “P” or in other partnership firm “AX” earned after the date of becoming a partner of the firm AB shall not be added in partnership firm AB.
14.	In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm.
15.	In case company A is merged with company B, then company B would get the credentials of company A also.
2.6	**Tenderer Credentials:**
	Documents testifying tenderer previous experience and financial status should be produced along with the tender.

	Tenderer(s) who is / are not borne on the approved list of the Contractors of Railway shall submit along with his / their tender:
	(i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past. (ii) Certificates which may be an attested Certificate from the client, Audited Balance Sheet duly certified by the Chartered Accountant etc. regarding contractual payments received in the past. (iii) The list of personnel / organization on hand and proposed to be engaged for the tendered work. Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work. (iv) A copy of certificate stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-7/Annexure-M. <u>In Addition to Annexure-7/Annexure-M, In case of other than company/proprietary firm, Annexure-7A/Annexure-M (I) shall also be submitted by the each member of a Partnership Firm/Joint Venture (JV)/Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP) etc. as the case may be.</u> Non submission of a copy of certificate by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify state and submit the supporting documents duly self-attested/digitally signed by which they/he are/is qualifying the Qualifying Criteria mentioned in the Tender Document. (v) The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway there under. (vi) (a) In case of any information submitted by tenderer is found to be false forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of up to two years. (b)In case of any information submitted by tenderer is found to be false forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of up to Two years.
	NB: [A] Current financial year means, the financial year in which the tender is opened. Financial year means on and from 1st April to 31st March.

	[B] The "tenderer[s]" mentioned in Para 2.1 and 2.2 above means – In the "name and style", the tenderer[s] who are submitting their offers in the capacity of individual/proprietary/partnership firms etc. [C] Normally, the credentials [technical and financial] should be in the "name and style" of the tenderer[s] who are submitting their offer as a tenderer[s]. [D] The tenderer[s] who have acquired necessary credentials [technical and financial] as a constituent in the partnership/Joint Venture firm, such apportioned credentials [technical and financial] will also be considered. [Documents shall be furnished]. [E] The credentials [technical and financial] with regard to execution and physical completion of single similar work and contractual receipts should pertain to the qualifying period i.e. within the current financial year and last seven years and three previous financial years. Scanned copy of audited balance sheets should be submitted in Pdf format (Annexure C of tender document). The technical credential should clearly indicate executed items conforming to definition of similar nature of work (Annexure B of tender document). [F] Permissibility of Joint Venture/MOU/Consortium in this tender. [As mentioned in Top Sheet] [G] Authentic copy of the documents should be uploaded by the tenderer[s] along with their offer to fulfill the eligibility criteria otherwise their offers will not be considered and summarily rejected. The tenderer shall submit along with the tender document, documents in support of his/their claim to fulfill the eligibility criteria as mentioned in the tender document. Each page of the copy of documents/certificates in support of credentials, submitted by the tenderer, shall be self-attested/digitally signed the tender or authorized representative of the tendering firm. **Self-attestation shall include signature, stamp and date (on each page). Only those documents which are declared explicitly by the tenderer as "documents supporting the claim of qualifying the laid down eligibility criteria", will be considered for evaluating his/their tender**.
2.7	The tenderer should also upload copy of the following documents along with the tender.
A.	List of personnel, organization available on hand and proposed to be engaged for the subject work.
B.	List of Plant and Machinery available on hand [own] and proposed to be inducted [own and hired to be given separately] for the subject work.
C.	List of works physically completed in the last 07 [seven] financial years under Govt./Semi Govt. organizations 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
D.	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.
	NOTE: In this regard, supportive documents/certificates from the organizations with whom they Worked/are working should be uploaded. Certificates from private individuals for whom such Works are executed/being executed shall not be accepted.
3.0	If a bidder has successfully completed a work as sub-contractor and the work experience certificate has been issued for such work to subcontractor by a Govt. Organization or public Listed company as defined in note for item 10.1 Part –I of GCC, the same shall be considered for the purpose of fulfillment of credentials. (Railway Board's letter no.2022/CE-I/CT/GCC/Policy dated 27.04.2022)
4.0	The copy of the credential certificates as per Para 2.1 above to be uploaded by the tenderers which should contain the basic information such as
	(i) Contract Agreement No., (ii) Detailed nature of work executed, (iii) Date of physical completion of work, (iv) Total amount received, (v) Name and Style in whose favour the credential certificate is issued if in favour of JV share in JV. (vi) Execution of quantities of specific items if asked for to fulfil eligibility criteria.
5.0	**Similar nature of work means:** Any Civil Engineering work involving building works & structural steel work .
6.0	Non-compliance with any of the conditions set forth therein above is liable to result in the tender being rejected.
7.0	The prospective tenderers /bidders must have a "Class III Digital Signature" with Company name from any certifying agency (CA) authorized by controller of certifying Authorities (CCA). They also have to submit online request for registration sufficiently in advance to get themselves registered on IREPS (works) in order to participate in e-tendering in works contracts.
8.0	In order to participate in e-tendering on IREPS (works), the prospective Joint Venture Firm (JV) must have requisite valid Digital Signature issued in the name of said JV Firm and must have registration with IREPS (Works) in the name/identity of the JV firm. The tender form can however be submitted by JV or any of its constituent member or any person authorized by JV through Power of Attorney to submit tender.

पूर्व मध्य रेल
निर्माण संगठन
Excerpts of General Conditions of Contract April-2022

(To be read with General Conditions of Contract **April-2022** updated up-to-date of closing of tender)

1.0 GENERAL

1.1 The tenderer[s] should not put any unusual condition from their side contradicting terms and conditions in the e-tender. Such unusual/ contradictory conditions may not be considered.

1.2 **In case of any difference/discrepancy in clauses/paras of General Conditions of Contract April-2022 reproduced in this tender document with respect to General Conditions of Contract April-2022 corrected up to date of closing of this tender, then later shall prevail.**

1.3 Please fill in required information asked for in the specified space in the e-tender. Tender will be, otherwise, treated incomplete and, hence, will be liable for rejection.

1.4 The quantity shown in the schedules are approximate and are likely to vary on either side [+/-] as per clause-2 of special conditions of contract.

1.5 MOBILISATION, MACHINERY OR ANY OTHER ADVANCES WILL BE APPLICABLE FOR VALUE OF WORK MORE THAN Rs.50 [Fifty] CRORE

1.6 All measurements, methods of measurements, meaning and item of specifications and interpretation of Special Conditions of Contract given and made by the Railway or by the Engineer on behalf of the Railway shall be final and binding and shall be considered as "excepted matters" in terms of Clause-63 of INDIAN RAILWAY STANDARD GENERAL CONDITIONS OF CONTRACT April-2022 corrected up to date of closing of tender.

1.7 **Measurement of work by contractor in work's contract (Applicable to tender value Rs 05 crore or more) Railway Board has approved Clause 1316A in Indian Railway Code for Engineering Department-2012, in order to introduce system of measurement of work by the contractor and release of provisional payment in 'Works contracts. Kindly find enclosed herewith the Advance Correction Slip No. 50 to Indian Railway Code for Engineering Department. [Please refer special condition Chapter 6 of Tender document]**

2.0 TENDER DOCUMENT

2.1 Tenderers are required to submit their offer through e-tender on website www.ireps.gov.in and the tenderer/tenderers shall quote his/their rates therein as required

2.2 The authorized person of the tenderer[s] shall only submit the e-tender along with the enclosures.

2.3 **Execution of Contract Documents:**

The successful Tenderer(s) shall be required to execute an agreement with the President of India acting through the East Central Railway for carrying out the work according to Standard General Conditions of Contract April 2022, Special Conditions / Specifications annexed to the tender and Standard Specifications (Works and Materials) of Railway as amended/corrected up to latest correction slips, mentioned in tender form (First Sheet).

2.4 **Partnership Deeds, Power of Attorney Etc.: GCC, April 2022. (Para. 14)**

A The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / company / Joint Venture (JV) / Registered Society / Registered Trust/HUF, Hindu Undivided Family/Limited Liability Partnership (LLP) etc. The tenderer(s) shall enclose the attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be.

B **Following documents shall be submitted by the tenderer:**

(a)Sole Proprietorship Firm

(i) An undertaking that he is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which he was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.

(ii) All other documents in terms of explanatory notes in para 10 of the tender form (second sheet) of GCC, April 2022.

(b) HUF:

(i) A copy of notarized affidavit on Stamp Paper declaring that he who is submitting the tender on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

(ii) All other documents in terms of explanatory notes in para10 of the tender form (second sheet) of GCC, April 2022.

(c) Partnership Firm: The tenderer shall submit all documents as mentioned in Para 18 of the tender form (second sheet) of GCC, April 2022.

(d) Joint Venture (JV): The tenderer shall submit all documents as mentioned in Para 17 of the tender form (second sheet) of GCC, April 2022.

(e) Company registered under Companies Act 2013:

(i)The copies of **MOA (Memorandum of Association) / AOA (Articles of Association)** of the company.

(ii)A copy of Certificate of Incorporation.

(iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.

(iv) All other documents in terms of Para 10 of the tender form (second sheet)of GCC, April 2022

(f) LLP (Limited Liability Partnership): If the tender is submitted on behalf of a LLP registered under LLP Act-2008, the tenderer shall submit along with the tender

(i) A copy of LLP Agreement

(ii) A copy of Certificate of Incorporation

(iii)A copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP

(iv)An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.

(v)All other documents in terms of Para 10 of the tender form (second sheet) of GCC, April 2022

(g) Registered Society & Registered Trust: The tenderer shall submit

(i) A copy of Certificate of Registration

(ii) A copy of Memorandum of Association of Society/Trust Deed

(iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust

(iv) A copy of Rules & Regulations of the Society

(v) All other documents in terms of Para 10 of the tender form (second sheet) of GCC, April 2022

C If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm / Partnership firm / Joint Venture / Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.

D After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm / Partnership Firm / Registered Company/ Registered Trust/ Registered Society / HUF etc. Shall be neither asked nor considered, if submitted. Further, no suo-moto cognizance of any document available in public domain (i.e., on internet etc.)

or in Railway's record/office files etc. will be taken for consideration of the tender, if no such mention is available in tender offer submitted.

E A tender from JV / Partnership firm etc. shall be considered only where permissible as per the tender conditions.

F The Railway will not be bound by any change of power of attorney or in the composition of the firm made subsequent to the submission of tender. Railway may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

2.5 The tenderer whether sole proprietor / a company or a partnership firm / registered society / registered trust / HUF / LLP etc. if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender, submit the tender and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provisionmadeinthepartnershipdeed/MemorandumofUnderstanding/ArticleofAssociation /Board resolution, failing which tender shall be summarily rejected.

A separate power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, shall be submitted after award of work, specifically authorizing him/them to deal with all other contractual activities subsequent to signing of agreement, if required.

Note: A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.

2.6 If it is mentioned in the tender that it is being submitted on behalf of/by a Sole Proprietorship Firm/Partnership Firm/Joint Venture/Registered Company/LLP etc. but above-mentioned document/s (as applicable) are not enclosed along with tender, the tender shall be summarily rejected.

If it is NOT mentioned in the tender that it is being submitted on behalf of / by a Sole Proprietorship Firm/Partnership Firm/Joint Venture/Registered Company etc. then the tender shall be treated as having been submitted by the individual who has signed the tender.

After opening of the tender, any document pertaining to the constitution of the Firm/JV/Society etc. shall neither be asked nor be entertained/ considered.

A tender from JV/Consortium/Partnership Firm etc. shall be considered only where permissible as per the tender conditions.

The Railway will not be bound by any power of attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the submission of tender. It

may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor.

2.7 Employment/Partnership etc. of Retired Railway Employees:

(a) Should a tenderer be

(i) a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being.

OR

(ii) being partnership firm / joint venture (JV) / registered society / registered trust etc. have as one of its partners/members a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement,

OR

(iii) being an incorporated company have any such retired Engineer of the gazetted rank or any other gazetted officer working before his retirement as one of its directors

AND

In case where such Engineer or officer had not retired from government service at least 1 year prior to the date of submission of the tender THEN the tenderer will give full information as to the date of retirement of such Engineer or gazetted officer from the said service and as to whether permission for taking such contract, or if the Contractor be a partnership firm or an incorporated company, to become a partner or director as the case may be, has been obtained by the tenderer or the Engineer or officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender.

(b) In case, upon successful award of contract, should a tenderer depute for execution of the works under or to deal matters related with this contract, any retired Engineer of gazette rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, and now in his employment, then the tenderer will ensure that retired Engineer or retired gazetted officer had retired from government service at least 1 year prior to the date of his employment with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorized by him in this behalf, to get associated with the tenderer.

2.8 PROGRAMME OF COMPLETION OF WORK

2.8.1 The Tenderer[s] shall attach scanned copy of a comprehensive list of plant and machinery which he/they propose[s] to use in the execution of work.

2.8.2 Tenderer[s] shall attach along with tender scanned copy of an attested BARCHART, Activity wise detailed programme of how he/they plan to complete the work in the time

frame stipulated in the tender along with details of machinery proposed to be deployed to achieve the same.

2.9 REFERENCE TO RULE BOOK AND DRAWINGS

2.9.1 The drawings for the works as available can be seen in the office of the concerned Chief Administrative Officer/Con/E. C. Railway, Mahendrughat, Patna-800004 or in the office of the concerned Dy. Chief Engineer/Con/I/Danapur as the case may be at any time during office hours.

2.9.2 The terms "Correction Slip" as referred to in this tender document includes the following terms also. Addendum slip[s] and Corrigendum slip[s] which are issued in consecutive serials.

2.10 USSOR 2021 with "Indian Railways Unified Standard Specifications" with up to date correction slips can be seen at above mentioned offices. Indian Railway Standard General Conditions of Contract April'22 can be downloaded from the IREPS website. Copies of the same can also be had on payment of an amount specified for copy of each Volume on any working day during office hours from the office of General Manager [Engg], E C. Railway, Hajipur subject to availability.

3.0 Bid Security: -

3.1 (a) The tenderer shall be required to submit the Bid Security with the tender for the due performance with the stipulation to keep the offer open till such date as specified in the tender, under the conditions of tender. The Bid Security shall be as under

Value of work	**Bid Security**
For all works	2% of the estimated cost of the work

Note:-

(i) The Bid Security shall be rounded off to the nearest ₹100. This Bid Security shall be applicable for all modes of tendering.

(ii) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security detailed above.

(iii) Labour Cooperative Societies shall submit only 50% of above Bid Security detailed above.

(b) It shall be understood that the tender documents have been issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the Railway.

(c) If his tender is accepted, this Bid Security mentioned in sub-Para (a) above will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.

3.2 The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as

mentioned in tender documents. The Bank Guarantee bond shall be as per Annexure N and shall be valid for a period of 90days beyond the bid validity period.

In case, submission of Bid Security in the form of Bank Guarantee, following shall be ensured:

(i) A scanned copy of the Bank Guarantee shall be uploaded on e-Procurement Portal (IREPS) while applying to the tender.

(ii) **The original Bank Guarantee should be delivered in person to the official nominated as indicated in the tender document before closing date for submission of bids (i.e., excluding the last date of submission of bids).**

(iii) Non submission of scanned copy of Bank Guarantee with the bid on e-tendering portal (IREPS) and/or no submission of original Bank Guarantee within the specified period shall lead to summary rejection of bid.

(iv) The Tender Security shall remain valid for a period of 90 days beyond the validity period for the Tender

(v) The details of the BG, physically submitted should match with the details available in the scanned copy and the data entered during bid submission time, failing which the bid will be rejected

(vi) The Bank Guarantee shall be placed in an envelope, which shall be sealed. The envelope shall clearly bear the identification "**Bid for the ***** Project"** and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right-hand top corner of the envelope.

(vii) The envelope shall be addressed to the officer and address as mentioned in the tender document.

(viii) If the envelope is not sealed and marked as instructed above, the Railway assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.

3.3 Tender without Bid Security will not be considered and the tender will be summarily rejected subject to exemptions provided under Para 5(1) (a) of part-I (ITT) of this document.

3.4 The Tenderer(s) shall keep the offer open for a minimum period of 60 days (in case of two packet system of tendering 90days) from the date of closing of the Tender. It is understood that the tender documents have been issued to the Tenderer(s) and the Tenderer(s), is / are permitted to tender in consideration of the stipulation on his / their 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 resilefromhisofferormodifythetermsandconditionsthereofinamannernotacceptableto EC Railway should the tenderer fail to observe or comply with the foregoing stipulation, the amount deposited or Bank guarantee bond submitted as Bid Security for the due performance of the above stipulation, shall be forfeited to the Railway.

3.5 The Bid Security mentioned in sub para(a) above deposited in cash through e-payment gateway will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract;

3.6 The Bid Security mentioned in sub Para(a) above submitted as Bank guarantee bond, will be en-cashed as part security for the due and faithful fulfillment of the contract in terms of Clause 16 Part II of the Standard General Conditions of Contract.

3.7 The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation to the Bid Security that may happen thereto while in their possession, nor be liable to pay interest thereon.

3.8 In case Contractor submits the Term Deposit Receipt/Bank Guarantee Bond towards either the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security so retained as per sub Para(c) above, to the Contractor.

4.0 DOCUMENTS AND OTHER CONDITIONS

4.1 The submission of offer in the e-tender by a tenderer[s] shall be deemed to imply and taken as indicating that he has read, understood and abide by the conditions stated therein and the USSOR 2021 with "Indian Railways Unified Standard Specifications" and Indian Railway Standard General Condition of Contract-April 2022including correction slips issued up to the date of closing of tender.

4.2 A certificate may be uploaded along with the offer that the Tenderer[s] has/have gone through all the conditions of contract and rates, specifications, etc. embodied in USSOR 2021 with "Indian Railways Unified Standard Specifications" and Indian Railway Standard General Conditions of Contract April 2022with correction Slips up to the date of inviting of the tender.

4.3 The certificates of completion of work and work under progress in support of the execution of similar type of work mentioned in the tender must be uploaded along with the offer issued by the concerned authority of any Government/Semi Government organization under whom the work executed. The certificate should contain name of work, agreement/work order No, value of the work, date of award, date of completion, total amount paid.

4.4 When work is tendered for by a firm or company of contractors, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.

4.5 If the Tenderer[s] expires after the submission of his/their Tender or after the acceptance of his/their Tender, the Railway shall deem such Tender cancelled. If a partner of a Firm expires after submission of their Tender or after the acceptance of their tender, the Railway shall deem such Tender as cancelled unless the Firm retains its character legally acceptable.

4.6 If the Tenderer[s] deliberately gives/give wrong information in his/their Tender or creates/create circumstances for the acceptance of his/their Tender, Railway reserve the right to reject such tender at any stage.

4.7 The copies of the following documents should be uploaded along with the offer.

(a) List of personnel, organization available on hand and proposed to be engaged for the subject work.

[b] List of Plant and Machinery available on hand [own] and proposed to be inducted [own and hired to be given separately] for the subject work.

4.8 The authority for the acceptance of the Tender will rest with the Railway. It shall not be obligatory on the said authority to accept the lowest tender or any other tender and no tenderer[s] shall demand neither any explanation for the cause of rejection of his /their tender nor the Railway undertake to assign reasons for declining to consider or reject any particular tender or tenders. The Railways reserve the right to accept the Tender either for the full quantity of work or part thereof or divide the works amongst more than one Tender without assigning any reasons for any such actions.

4.9 Should a Tenderer[s] find discrepancies in or omission from the drawings or any of the Tender Forms, or should be in doubt as to their meanings, he/they should at once, notify the authority inviting the Tender who may send a written instruction to all Tenderer[s]. It should be understood that every endeavor has been made to avoid any error which can naturally effect the basis of the Tender and the successful Tenderer[s] shall take upon himself/themselves and provide for the risk of any error which may subsequently be discovered and shall make no subsequent claim on account thereof.

4.10 The documents submitted by Tenderer[s] online and generated/downloaded by Railway Authority shall become the property of the Railway and the Railway shall have no obligation to return the same to the Tenderer[s].

4.11 Subsequent to the enactment of GST Act, Para (a) of Clause 6, Part-I of Indian Railway Standard General Conditions of Contract April-2022. The revised Para (a) of Clause 6, of Indian Railway Standard General Conditions of Contract April-2022 shall be read as under:

Care in Submission of Tender.

(a) (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 provision in Clause-37 of the Indian Railway Standard General Conditions of Contract April-2022 for the completion of works to the entire satisfaction of the Engineer.

(i) Tenderers will examine the various provisions 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. & 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.

(ii) 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 railway 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.

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

(iv) contractor shall be liable to pay/refund the amount collected as GST to the Indian Railways along with interest and penalties, if any imposed by the authorities, in case GST input tax credit of Indian Railways is denied/rejected by the tax authorities due to reasons mentioned below but not limited to:

Wrong/incorrect invoices issued by contractor:

No-filing of GST returns

Non-payment of GST collected from Indian Railways to the authorities

Any other non-compliance done by contractor

General Indemnity: Contractor hereby agrees to indemnify and hold harmless the Indian railways from and against any and all losses, including loss on account of Input Tax credit and all losses incurred by the Indian Railways relating to or arising out of or in connection with any actual or threatened claim, legal action, proceedings, prosecution or inquiry by or against the Indian railways arising out, directly or indirectly, of failure by the contractor to comply with the provisions of GST and related laws, or based upon or arising from any failure by the contractor.

Retention Money: Any payment liable to be paid by Indian Railways to contractor against the goods or services or both supplied by such contractor to Indian railways shall be kept on hold in case supplier makes any non-compliance of any of the GST law provisions including non-reporting of invoices in GST returns. Such payment shall be released after proper verification of records and availability of ITC to Indian Railways as per provisions of GST law.

(b) When work is tendered for by a firm or company of contractors, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.

(c) The Railway will not be bound by any power of attorney granted by the tenderer or by 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 advice, the cost of which will be chargeable to the contractor.5

4.12 The tenderers shall submit a copy of certificate submitted by tenderer stating that all their statements/documents submitted along with bid is true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-7/Annexure-M. <u>In Addition to Annexure-7/Annexure-M, In case of other than company/proprietary firm, Annexure-7A/Annexure-M(I) shall also be submitted by the each member of a Partnership Firm/Joint Venture (JV)/Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP) etc. as the case may be.</u> Non submission of above certificate by the bidder shall result in **summarily** rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify state and submit the supporting documents duly self-attested/digitally signed by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document.

4.13 The successful Tenderer[s] shall be required to execute an Agreement with the President of India acting through the East Central Railway for carrying out the work according to General Conditions of Contract April 2022, Special Conditions/Specifications annexed to the tender and specifications for work and materials as laid down in Indian Railways Unified Standard Specifications [volume-I and II]-2010 as amended/corrected up to the date of closing of tender.

4.14 The Tenderer[s] whose tender is accepted shall appear at the office of the Chief Administrative Officer/ Con/South/MHX, Chief Engineer/Con/GB/MHX and Dy. CE/Con/I/DNR as the case may be in person or in case of a Firm or Corporation, a duly authorized representative thereof shall so appear to execute the Contract documents within 7 days after receipt of notice issued by Railway that such documents are ready. Failure to do so shall constitute breach of the Agreement effected by the acceptance of the Tender.

4.15 In the event of any tenderer whose tender is accepted shall refuse to execute/does not execute the contract documents as here in before provided, the Railway may determine that such tenderer[s] has/have abandoned the contract and there upon his/their tender and acceptance letter thereof shall be treated as cancelled and the Railway shall be entitled to forfeit the full amount of earnest money and to recover the damages for such default as per Clause No. 62[2] of Indian Railway Standard General Conditions of Contract April 2022 corrected/amended up to the date of closing of tenders.

4.16 In case of non-acceptance of a tender by the Railway Administration for any reason whatsoever, the Tenderer[s] cannot claim for any expenses incurred by him/them in submitting the Tender for the work or for any other account.

4.17 Where there is any conflict between the instructions to Tenderers, Special Conditions with stipulation and Conditions in these tender particulars in one hand, Indian Railway Standard General Conditions of Contract April 2022 and Indian Railway Unified Standard Specifications [Vol-I and II]-2010 with corrections slips issued up to the date of closing of tender on the other hand, the former shall prevail.

4.18 All the works included in the tender/contract shall be completed in all respect within the time specified in tender document.

4.19 All latest guidelines, codes, correction slip etc. will be applicable to Special condition and Specification for different nature of work as mention in Chapter 6 of this tender document. Unusual terms and conditions in offers are liable to be ignored.

4.20 These instructions to the Tenderer[s] shall be deemed to form a part of the tender document

पूर्वमध्यरेल
निर्माणसंगठन

SPECIAL CONDITIONS OF CONTRACT

1.0 **GENERAL:**

1.1 Principal items of works to be carried out by the tenderer/contractor are as noted in the tender document.

1.2 The quantities of works to be carried out by the tenderer/contractor will be as mentioned in the work order/Agreement.

1.3 The approximate value of the work is specified in the Tender Notice/Agreement.

1.4 Plans for the works as may be available, may be inspected in the Office of the concerned Chief Engineer Con/GB/E.C. RLY, Mahendrughat, Patna or in the office of the concerned Dy. Chief Engineer/Con/1/DNR, E.C. Railway, Danapur.

1.5 [i] The successful tenderer/contractor will have to maintain all works for a period of 12 [Twelve] Calendar months unless otherwise specified from the certified actual date of completion without any extra cost to the Railway.

[ii] In case of P-Way works, the contractor shall maintain the same till six months from completion of the work or till allowing regular train services on the track whichever is earlier.

1.6 **No Mobilization, Machinery or any other advances will be allowed for this work unless otherwise specified**.

1.7 All the works included in the tender/contract shall be completed within the time specified in the tender/agreement.

1.8 The additional special conditions dealt in the document, Instructions to Tenderer[s] and the stipulations made in the Schedules of items of works shall govern the works under this contract, in addition to and/or in part super session of the USSOR 2021 with "Indian Railways Unified Standard Specifications" and Indian Railway Standard General Conditions of Contract April, 2022 corrected up to date of closing of tender

1.9 Where there is any conflict between the Instructions to Tenderer[s], Additional Special Conditions of Contract and the stipulations contained in the Schedules of Items quantities and rates on the one hand and the USSOR 2021 with "Indian Railways Unified Standard Specifications" and Indian Railway Standard General Conditions of Contract April, 2022 corrected up to date of closing of tender on the other hand, the former shall prevail.

1.10 **Any notes appearing in the Schedule of Quantities and Rates will take precedence over Additional Special Conditions of Contract and also GENERAL CONDITIONS OF CONTRACT April-2022and STANDARD SPECIFICATIONS. The Railway will take for granted that Tenderer[s] has/have acquainted himself/themselves with all terms and words used in the tender before submitting the tender.**

DEEPAK KUMAR Digitally signed by DEEPAK KUMAR Date: 2026.06.18 13:09:50 +05'30'

SUDHIR KUMAR SINGH Digitally signed by SUDHIR KUMAR SINGH Date: 2026.06.18 13:27:20 +05'30'

PRATEEK RASTOGI Digitally signed by PRATEEK RASTOGI Date: 2026.06.18 13:35:35 +05'30'

1.11 Any specifications/conditions stated by the Tenderer[s] in offer submitted by him/them along with the tender shall be deemed to be a part of the contract only to such an extent as has been expressly accepted by the Railway.

1.12 All measurements, methods of measurements, meaning and item of specifications and interpretation of Special Conditions of Contract given and made by the Railway or by the Engineer on behalf of the Railway shall be final and binding and shall be considered as "excepted matters" in terms of Clause 63 of INDIAN RAILWAY STANDARD GENERAL CONDITIONS OF CONTRACT April, 2022 corrected up to date of closing of tender.

1.13 **Measurement of work by contractor in work's contract (Applicable to tender value Rs. 05 crore or more) Railway Board has approved Clause1316A in Indian Railway Code for Engineering Department-2012, in order to introduce system of measurement of work by the contractor and release of provisional payment in 'Works contracts. Kindly find enclosed herewith the Advance Correction Slip No. 50 to Indian Railway Code for Engineering Department. [Please refer special condition Chapter 6 of Tender document]**

(Authority; Railway Board's letter No. 2017/CE-I/CT/9, Dated 31.05.2023)

1.14 Any change in the address of the contractor shall be forthwith intimated in writing to the Railways. The Railway will not be responsible for any loss or inconvenience suffered by the contractor on account of his failure to comply with this.

1.15 The Railway Administration reserves the right to alter the detailed plans and sections and to carry out minor alterations in the plans resulting in the corresponding increase/decrease in the quantity of work without being liable to pay enhanced rates for the work and to allow extra time for completion of the work.

2.0 **VARIATION IN CONTRACT QUANTITIES:**

Modification to Contract to be in Writing: In the event of any of the provisions of the contract required to be modified after the contract documents have been signed, the modifications shall be made in writing and signed by the Railway and the Contractor and no work shall proceed under such modifications until this has been done. Any verbal or written arrangement abandoning, modifying, extending, reducing or supplementing the contract or any of the terms thereof shall be deemed conditional and shall not be binding on the Railway unless and until the same is incorporated in a formal instrument and signed by the Railway and the Contractor, and till then the Railway shall have the right to repudiate such arrangements.

2.1 **Powers of Modification to Contract:** The Engineer on behalf of the Railway shall be entitled by order in writing to enlarge or extend, diminish or reduce the works or make any alterations in their design, character position, site, quantities, dimensions or in the method of their execution or in the combination and use of materials for the execution thereof or to order any additional work to be done or any works not to be done and the Contractor will not be entitled, to any compensation for any increase/reduction in the quantities of work but will be paid only for the actual amount of work done and for approved materials supplied against a specific order.

2.2.(i) Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity of each individual item of the contract would be up to 25% of the quantity originally contracted, except in case of foundation work (in which no variation limit shall apply).However, the rates for the increased quantities shall be as per sub- Para (iii) below.

(ii) The Contractor shall be bound to carry out the work at the agreed rates and shall not be entitled to any claim or any compensation whatsoever up to the limit of 25% variation in quantity of individual item of works.

(iii) In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, then same shall be executed at following rates

a. 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;
b. 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;
c. Variation in quantities of individual items beyond 150% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.
d. Variation to quantities of Minor Value Item: 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 contract value.

d.(i) Quantities operated up to and including 100% of the agreement quantity of the concerned minor value item, shall be paid at the rate awarded for that item in that particular tender;

d.(ii) Quantities operated in excess of 100% but up to 200% of the agreement quantity of the concerned minor value item, shall be paid at 98% of the rate awarded for that item in that particular tender;

d.(iii) Variation in quantities of individual minor value item beyond 200% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.

(iv) In case of earthwork items, the variation limit of 25% shall apply to the gross quantity of earthwork items and variation in the quantities of individual classifications of soil shall not be subject to this limit.

(v) As far as Standard Schedule of Rates (SSOR) items are concerned, the variation limit of 25%would apply to the value of SSOR schedule(s) as a whole and not on individual SSOR items. However, in case of Non Standard Schedule of Rates (SSOR) 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).

2.3 **Valuation of Variations:** The enlargements, extensions, diminution, reduction, alterations or additions referred to in Sub-Clause (2) of this Clause shall in no degree affect the validity of the contract; but shall be performed by the Contractor as provided therein and be subject to the same conditions, stipulations and obligations as if they had been originally and expressively included and provided for in the Specifications and Drawings and the amounts to be paid therefor shall be calculated in accordance with the accepted Bill(s) of Quantities. Any extra item(s)/quantities of work falling outside the purview of the provisions of Sub-Clause (2) above shall be paid for at the rates determined under Clause-39 of these Conditions.

3.0 **AGREEMENT**:

3.1 All expenses in drawing up the agreement and the cost of stamp duty, if any, shall be borne by the Railway Administration.

3.2 Should the successful Tenderer/Contractor on the list of approved contractor have a relative or relatives or in the case of firm or company or contractors one or more of its shareholders or a relatives of the shareholder[s] employed in the gazetted capacity in the Engineering Department of the East Central Railway, the authority executing the contract shall be informed of the fact at the time of execution of the contract, failing which the contractor may be dis-qualified, or such facts subsequently comes to light, the contract may be rescinded in accordance with the provisions in Clause-62 of the Indian Railway Standard General Conditions of Contract April 2022 corrected up to date of closing of tender.

3.3 Should the successful Tenderer/Contractor find that his relative has/have obtained an employment in gazetted capacity in the Engineering Department of the East Central Railway, subsequent to the execution of the agreement or in the case of a firm or company of contractors, one or more of its shareholders or relative or relatives of the shareholder[s] got employed in the gazetted capacity in the Engineering Department of the East Central Railway, subsequent to the execution of the agreement, the successful tenderer/contractor shall inform the authority executing the contract of this fact, failing which the successful tenderer/contractor may be dis-qualified or if such fact subsequently come to light, the contract may be rescinded in accordance with the provision in Clause-62 of the Indian Railway Standard General Conditions of Contract.

3.4 a Should a Tenderer/Contractor be a retired Engineer of the Gazetted Rank or any other Gazetted Officer working before his retirement, whether in the executive or administrative capacity, or whether holding a pensionable post or not, in the Engineering Department of any of the Railways owned and administrated by the President of India for the time being, or should a tenderer/contractor being partnership firm have as one of its partners retired Engineer or retired Gazetted Officer as aforesaid, or should a tenderer/contractor being an incorporated company have any such retired Engineer or retired Officer as one of its Directors, or should a tenderer/contractor have in his employment any retired Engineer or retired Gazetted Officer as aforesaid, the full information as to the date of retirement of such Engineer or Gazetted Officer from the said service and in case where such Engineer or officer had not retired from Government service at least 01(one) year prior to the

date of submission of the tender as to whether permission for taking such contract, or if the contractor be a partnership firm or an incorporated company, to become a partner or Director as the case may be, or to take the employment under the contractor, has been obtained by the tenderer or the Engineer or Officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender. Tenders without the information above referred to or a statement to the effect that no such retired Engineer or retired Gazetted Officer is so associated with the tenderer, as the case may be, shall be rejected.

b Should a tenderer or contractor being an individual on the list of approved Contractors, have a relative[s] or in the case of partnership firm or company of contractors one or more of his shareholder[s] or a relative[s] of the shareholder[s] employed in gazetted capacity in the Engineering department of the East Central Railway, the authority inviting tenders shall be informed of the fact at the time of submission of tender, failing which the tender may be disqualified/rejected or if such fact subsequently comes to light, the contract may be rescinded in accordance with the provision in clause 62 of the Indian Railway Standard General Conditions of Contract April 2022corrected up to date of closing of tender.

3.5 If it is detected at any stage during the currency of contract/Agreement that any document produced by the contractor during submission of his/ their tender related to finalization of his/their tender and/or during execution of work is/are found wrong/false, the contract will be terminated with forfeiture of Earnest Money deposit/Security deposit [as the case may be] without any further correspondence with the contractor[s].

4.0 **PASSES**

No free Railway passes shall be issued by the Rly. to the contractor or any of his employee/worker.

5.0 **EXTENSION OF TIME:**

Extension of Time in Contracts: Subject to any requirement in the contract as to completion of any portion or portions of the works before completion of the whole, the Contractor shall fully and finally complete the whole of the works comprised in the contract (with such modifications as may be directed under conditions of this contract) by the date entered in the contract or extended date in terms of the following clauses:

(i) **Extension due to Modification:** If any modifications have been ordered which in the opinion of the Engineer have materially increased the magnitude of the work, then such extension of the contracted date of completion may be granted as shall appear to the Engineer to be reasonable in the circumstances, provided moreover that the Contractor shall be responsible for requesting such extension of the date as may be considered necessary as soon as the cause thereof shall arise.

(ii) **Extension for Delay not due to Railway or Contractor:** If in the opinion of the Engineer, the progress of work has any time been delayed by any act or neglect of Railway's employees or by other Contractor employed by the Railway under Sub-

Clause (4) of Clause 20 of these Conditions or in executing the work not forming part of the contract but on which Contractor's performance necessarily depends or by reason of proceeding taken or threatened by or dispute with adjoining or to neighboring owners or public authority arising otherwise through the Contractor's own default etc. or by the delay authorized by the Engineer pending arbitration or in consequences of the Contractor not having received in due time necessary instructions from the Railway for which he shall have specially applied in writing to the Engineer or his authorized representative then upon happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer within 15 days of such happening, but shall nevertheless make constantly his best endeavors to bring down or make good the delay and shall do all that may be reasonably required of him to the satisfaction of the Engineer to proceed with the works. The Contractor may also indicate the period for which the work is likely to be delayed and shall be bound to ask for necessary extension of time.

(iii) **Extension for Delay due to Railways:** In the event of any failure or delay by the Railway to hand over the Contractor possession of the lands necessary for the execution of the works or to give the necessary notice to commence the works or to provide the necessary drawings or instructions or any other delay caused by the Railway due to any other cause whatsoever, then such failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the Contractor to damages or compensation therefore, but in any such case, the Railway may grant such extension or extensions of the completion date as may be considered reasonable.

5.2 The Contractor shall indicate the period for which the work is likely to be delayed and shall seek extension of time as may be considered necessary under clause 5(i) or/and 5(ii) or/ and 5(iii) above, as soon as the cause thereof shall arise and, in any case, not less than 15 days before the expiry of the date fixed for completion of the works. The Engineer shall consider the same and shall grant and communicate such extension of time as in his opinion is reasonable having regard to the nature and period of delay and the type and quantum of work affected thereby. No other compensation shall be payable for works so carried forward to the extended period of time; the same rates, terms and conditions of contract being applicable, as if such extended period of time was originally provided in the original contract itself.

The non-submission of request for extension or submission of request within less than 15 days before the expiry of the date fixed for completion of the works, shall make him ineligible for extension under these sub clauses, subject to final decision of Engineer.

5.3 **17B Extension of Time with Liquidated Damages (LD) for delay due to Contractor**: The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the date(s) as specified in the contract. If the Contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in GCC Clause 17 and 17A, the

Railway may, if satisfied that the works can be completed by the Contractor within reasonable short time thereafter, allow the Contractor for further extension of time (Proforma at Annexure-VII of GCC-2022) as the Engineer may decide. On such extension the Railway will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the Contractor as agreed damages and not by way of penalty for each week or part of the week, a sum calculated at the rate of Liquidated Damages as decided by Engineer, between 0.05% to 0.30% of contract value of the works for each week or part of the week.

For the purpose of this Clause, the contract value of the works shall be taken as value of work as per contract agreement including any supplementary work order/contract agreement issued. Provided also, that the total amount of liquidated damages under this condition shall not exceed 5% of the contract value or of the total value of the item or groups of items of work for which a separate distinct completion period is specified in the contract.

Provided further, that if the Railway is not satisfied that the works can be completed by the Contractor and in the event of failure on the part of the contractor to complete the work within further extension of time allowed as aforesaid, the Railway shall be entitled without prejudice to any other right or remedy available in that behalf, to appropriate the contractor's Security Deposit and rescind the contract under Clause 62 of these Conditions, whether or not actual damage is caused by such default.

NOTE: In a contract, where extension(s) of time have been allowed once under GCC clause 17B, further request(s)for extension of time under GCC clause 17A can also be considered under exceptional circumstances. Such extension(s) of time under GCC clause 17A shall be without any Liquidated damages, but the Liquidated damages already recovered during extension(s) of time granted previously under GCC clause 17B shall not be waived. However, Price variation during such extension(s) shall be dealt as applicable for extension(s) of time under GCC clause 17B.

5.4 **GCC Para 17C Bonus for Early Completion of Work**: In open tenders having advertised value more than **Rs 50crore** and original period of completion 12 months or more, when there is no reduction in original scope of work by more than 10%, and no extension granted on either railway or Contractor's account, Contractor shall be entitled for a bonus of 1% for each 30 days early completion of work. The period of less than 30 days shall be ignored while working out bonus. The maximum bonus shall be limited to 5%of original contract value. The completion date shall be reckoned as the date of issuance of completion certificate by Engineer. [**Not Applicable**]

5.5 **TERMINATION OF CONTRACT AFTER EXPIRY OF DATE OF COMPLETION**:

Railway reserves the right to terminate the contract after expiry of date of completion (original/extended) where work is incomplete and contractor is not willing to extend the validity of completion".

(Authority: Rly. Bd's. Letter no. 99/CE-I/CT/28 (PT) dt. 17.05.2004)

6.0 **DISSOLUTION OF CONTRACTOR'S FIRM:**

6.1 If the contractor's firm is dissolved due to death or retirement of any partner or for any reasons whatsoever before fully completing the whole work or any part of it undertaken by the Principal agreement, the partners shall remain jointly, severally and personally liable to complete the whole work to the satisfaction of the Railway and to pay compensation for loss sustained, if any, by the Railway due to such dissolution. The amount of such compensation shall be decided by the General Manager of the Railway and his decision in the matter shall be final and binding on the contractor[s].

7.0 **DEPLOYMENT OF PLANT AND MACHINERY:**

7.1 The deployment of plant and machinery including moving machines shall be such as not to infringe or cause damage to Railway track or any other Government or private properties. Operation of such equipment involving infringement to moving dimensions prescribed in the Hand book of the Schedule of Dimensions of the Railway shall not be undertaken without the prior approval of the Engineer-in-charge. For any loss or damage resulting from violation of this clause the contractor[s] shall be wholly responsible.

7.2 It should clearly be understood that it is entirely the successful tenderer[s]/contractor[s] responsibility and liability to find, procure and use all machinery, tools and plants and their spare parts that are required for efficient and methodical execution of the work. Delay in procurement of such items due to their non-availability or import difficulties or any other cause whatsoever, will not be taken as an excuse for slow progress or non-performance of the work.

8.0 **HIRING OF RAILWAYS PLANT and MACHINERY**:

8.1 The Railway Administration may have at their disposals for hire to successful tenderers/contractors a certain number of such plant as concrete mixtures, compressors and portable engines for use during execution of the work, but it does not guarantee hiring of any such machines or will any claim or compensation be entertained due to Railway Administration's inability to supply the machinery and plant or the conditions of the machinery and/or plant supplied by the Railway Administration shall not be taken as an excuse for slow progress or for non-performance of the work.

8.2 The Railway Administration shall charge the successful tenderer/contractor for hire of machinery and plant supplied to him/them. The rate of hire charges for the plant and machinery given by the Railway will be calculated on the following basis: -

[a]The cost of plant and machinery for the purpose of calculating the hire charges shall be its present day market value as on 1st April of the financial year in which the

plant is given on hire plus 5% freight and 2% incidental charges to which supervision charges at 12.1/2 % on the total cost will be added.

[b] The hire charge per annum will be calculated at the following rates on the cost of the plant and machinery as per [a] above:

I] Interest at the ruling rate of dividend payable by the Railway to the Central Government.

II] Ordinary repairs and maintenance charges @ 5%.

III] Special repairs and maintenance charges @ 10%.

IV] Depreciation charges at the rates mentioned in para 3505 of the I.R.W. and W. Manual [i.e. 16% for light, 10% for heavy and 6% for special type plant and machinery as classified in para 3502 of I.R.W.W.M.

V] An additional 10% on the total of [I] to [IV] above to meet the contingencies.

[c] The hire charges per day shall be arrived at by dividing the annual hire charges vide [b] above by 250. These hire charges will be payable from the day the plant is handed over to the hirer, to the day, it is returned by him to the Railway's representative. If the plant remains out of order for reasons, beyond the control of the hirer or is sent for periodical overhaul such periods will not be counted for levy of hire charges, provided a certificate to the effect is given by the Engineer.

The plant will be delivered from the Railway's go-down/stores depot and the contractor is to make his own arrangement for transporting the same at work site free of charges and will return at the same Railway's go-down/stores depot at his expenses.

[d] In case the contract is spread over a period of more than one year, the hire charges of the plant and machinery as arrived at on the above basis shall be operative during the currency of the contract.

8.3 The Railway shall reserve to itself the right to recall any plant/machinery without assigning any reasons by giving or at any time without notice in the event of its being required by the Railway for an unforeseen emergency. In either case, the Railway shall not be liable to pay any compensation to hirer for the loss that may be caused by the withdrawal of the plant.

8.4 While the machine[s] is/are in the possession of the contractor[s], he/they shall be responsible for seeing that any inspection certificate of license required under any Government Act is obtained in due time. The contractor shall also be responsible for seeing that all required precautions are observed in using the plants as well, and he shall be responsible for any accident which may occur from the use of the plant.

8.5 In case of lifting heavy consignments by cranes in connection with the work, charges for Railway cranes used will be levied against the successful Tenderer/Contractor as per the extant rules of the Railways.

8.6 The materials of the successful Tenderer/Contractor required for the execution of the work will have to be carried at the public rate of Railway freight and no concessional rate of Railway freight will be applicable. If called upon to do so the

successful Tenderer/Contractor will be bound to state, the source of supply of the materials to be used by him on the works. No. R.M.C. Notes or priority certificates will be issued for the carriage of tools, plant or any other materials belonging to the successful Tenderer/ Contractor.

9.0 **ISSUE OF MATERIALS:**

9.1 If materials outside the contract are supplied for use on a work on the application of a contractor, the Engineer-in-charge of the work should specify in each case the rate to be charged, which should be the market rate prevailing at the time of supply or the issue rate whichever is higher, Plus departmental charges which shall be computed as below:-Market rate or issue rate whichever is higher, plus freight 5%, incidental charges 2% and 12.1/2 % departmental charges to cover the cost of Supervision, Storage, interest on outlay.

9.2 [I]: In case, cement and/or steel and/or other materials stipulated as per agreement are issued to the contractor[s] either free of cost or on cost to be recovered for use on the work, the supply thereof shall be made in stages limited to the quantity/ qualities computed by the Railway according to the prescribed specifications and approved drawing as per the agreement. The cement and/or Steel and/or other materials issued in excess of the requirement[s] as above, shall be returned in perfectly good condition by the contractor to the Railway immediately after completion or determination of the contract. If the contractor fails to return the said stores, then the cost of cement and/or steel and/or other materials issued in excess of the requirement as computed by the Railway according to the specifications and approved drawings, will be recovered from the contractor[s] at twice the prevailing procurement cost at the time of last issued, viz. 2X [purchase price + 5% freight only].

If it is discovered that the quantity of cement and/or Steel and/or other materials used is less than the quantity ascertained as herein before provided, the cost of the cement and/or Steel and/or other materials not so used shall be recovered from the contractor[s] on the basis of the above stipulated formula.

The contractor shall not be entitled to cartage and incidental charges for returning the surplus materials issued as per contract or outside the contract on application, from and to the Stores where from they are issued. No lead will be paid for returning the empty cement bags.

[II]: The provisions of the fore-going sub-clause shall in addition to cement and other materials apply in the case of steel reinforcement or structural steel section, except that the theoretical quantity of steel shall be taken as the quantity required as per design or as authorized by the Engineer-in-Charge including authorized laps.

9.3 The materials issued to contractor but remaining unused and in perfectly good condition at the time of completion or determination of the contract shall be returned to the Engineer-in-Charge at a place where directed by him.

9.4 In case the contractor fails to return the unused or excess materials supplied outside the contract as per Para 9.1 above, over the requirement as calculated, the cost as arrived at in Para 9.1 above, increased by 100% will be charged and recovered from

the contractor's dues without prejudice the provision of the relevant conditions regarding return of materials governing the contract.

10.0 **STORAGE OF RAILWAY MATERIALS:**

10.1 The Contractor shall make his own arrangements at the site of work for the safe storage and custody of Railway material issued to him. Such Railway materials issued to the Contractor and stored at the site of work shall be opened for inspection by the Engineer-in-charge or his representative at any time.

10.2 Contractor's sheds, stores, camp office, yard etc., for stacking Railway materials shall be located in the Railway premises only at the locations approved by the Engineer-in-charge. **The land available will be given on standard charge fixed by the Railway for the period of construction only.** On completion of work, he shall leave the site free of all structures, debris etc. non-compliance of same the Engineer-at-site will decide the amount to be deducted from payment due to the contractor[s] and this shall be final and binding on the contractor[s].

10.3 **CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT**:
The provision of construction and demolition waste management rule 2016 issued by Ministry of Environment Forest and Climate change dt. 29.03.16 and published in Gazette of India Part-(II) section- subsection (ii) are binding upon the contractor. They must implement these provisions at work site. While quoting their rates, these provisions be kept in view as no extra payment will be made for implementation of this provision.
(Authority: GM/Engg./HJP's letter no. W-II/501/09/Rain water Pt.III/1856 dt. 08/09.08.2019)

11.0 **OCCUPATION AND USE OF LAND**:

No land belonging to or in the possession of the Railway shall be occupied by the Contractor without the permission of the Railway. The Contractor shall not use, or allow to be used; the site for any purposes other than that of executing the works. Whenever Non-Railway bodies/persons are permitted to use Railway premises with competent authority's approval. Conservancy charges as applicable from time to time may be levied.

12.0 **FORCE MAJEURE CLAUSE**:

Force Majeure Clause: If at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, acts of public enemy, civil commotion, sabotage, serious loss or damage by fire, explosions, epidemics/pandemics, strikes, lockouts or acts of God (hereinafter, referred to events) provided, notice of the happening of any such event is given by either party to the other within 30 days from the date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance, and works under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Engineer as to whether the works have been so resumed or not shall be final and conclusive, PROVIDED FURTHER that if the performance in whole or in part of

any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 120 days, either party may at its option terminate the contract by giving notice to the other party.

13.0 **NIGHT WORK:**

13.1 No work shall be carried out between sunset and sunrise without previous permission of Engineer-in-charge.

13.2 If the Engineer-in-charge is satisfied that the work is not likely to be completed in time except by resorting to night work, he may order the Contractor[s] to carry out the works even at night without conferring any right on the contractor for claiming any extra payment for the same. All arrangements in this connection shall be made by the Contractor at his own cost.

14.0 **SERVICE ROADS**:

14.1 No new facilities such as roads, level crossing, etc. other than those already in existence will be made available to the tenderer[s]/Contractor[s].

14.2 The successful tenderer[s]/Contractor[s] shall make his own arrangements at his own cost for the construction of service roads within the Railway land for the transport of materials. No separate payment shall be admissible to the Successful Tenderer[s]/Contractor[s] for the construction of such road or its repairs and maintenance. The Successful Tenderer[s]/Contractor[s] shall make his own arrangement at his own cost for the construction of any Service Roads outside the Railway land or for the use of any of the existing roads outside the Railway land, required for the transport of materials for the construction of such roads, its repair or maintenance and the successful tenderer[s]/Contractor[s] shall be responsible for payment of road taxes, toll charges, octroi duty, etc. if any. The Railway will have right to use the service roads at all times without any payment to the successful Tenderer[s]/Contractor[s].

14.3 Existing roads or water courses shall not be blocked, cut through, altered, diverted or obstructed in any way by the Contractor, except with the permission of the Engineer, All compensations claimed for any un-authorized closure, cutting through, alteration, diversion or obstruction to such roads or water courses by the Contractor or his agent or his staff shall be recoverable from the Contractor by deduction from any sums which may become due to him in terms of contract, or otherwise according to law.

15.0 **WATER SUPPLY**:

15.1 Water required for all the works shall be arranged by the contractor at his own cost. No arrangements will be made by the Railway Administration for supplying water to the Contractor either for drinking purpose or execution of work free of cost. Rate quoted shall include the cost of arranging water supply and no separate payment will be made to the contractor on account of water charges.

15.2 The Railway may supply if any surplus water available from its own sources to the Contractor part or whole of the quantity of the water required for the execution of works from the Railway's existing water supply system at or near the site of works

on specified terms and conditions and at such charges as shall be determined by the Railway and payable by the Contractor, provided that the Contractor shall arrange, at his own expense, to effect the connections and lay additional pipe lines and accessories on the site and that the Contractor shall not be entitled to any compensation for interruption or failure of the water supply.

16.0 **ELECTRICITY**:

16.1 Any electric supply required at site for whatsoever purpose shall be arranged by the Contractor/s. The contractor/s shall be responsible for the arrangements for obtaining electric supply at his/their own cost and rates quoted shall include the cost of providing electric supply arrangements required for the work.

16.2 The Railway may supply to the Contractor part or whole of the electric power wherever available and possible, required for execution of works from the Railway's existing electric supply systems at or near the site of works on specified terms and conditions and such charges as shall be determined by the Railway and payable by the Contractor provided the cost of arranging necessary connections to the Railway's Electric Supply systems, and laying of underground/overhead conductor, circuit protection, electric power meters, transmission structure, shall be borne by the Contractor and that the Contractor shall not be entitled to any compensation for interruption or failure of the Electric supply system.

16.3 If required by Contractor/s, the Railway administration may give required assistance in recommending to State Electricity Board for giving necessary electric connection to the Contractor for execution of works.

17.0 **LOSS OF WORK ORDERS**:

If the original work order issued to the contractor is lost by him for any reason whatsoever and the Contractor demands for supply of a duplicate of the same, a penal levy of Rs. 10/- [ten only] for each work order shall be imposed on him for the issue of a duplicate copy.

18.0 **ROYALTY FOR MATERIALS COLLECTED FROM UNDER RAILWAY LAND**

18.1 If and when the contractor quarries and/or collects materials from or from under Railway land for the purpose of supply of materials and or of work under an agreement based on special rates obtained for various items of work or supplies, he shall be liable to pay to the Railway a royalty at the flat rates hereinafter set out. Such royalty shall be recovered by deduction from the contractor's bill for the supply of materials and or work done under this agreement or from any other sums due to him from the Railway, at the rate prescribed by the State Government authorities and in force during the period the contract is current.

18.2 In case of contracts entered into at specified percentage on Schedule of Rates USSOR, the royalty rate as fixed in the preceding Para for materials extracted from Railway land will be subjected to tender increase or decrease and will be calculated as under:

Gross value payable as per Schedule of Rates USSR-2021 : X

Royalty leviable as per above : Y

Tender premium : Z

Net payment : [X-Y] + [X-Y] Z

18.3 Stores and other materials obtained from the dismantling of any structures within the Railway land and used as building stone pitching or breaking into ballast and stone chips etc., may be used by the successful Tenderer/Contractor on payment of appropriate rate as per Schedule of Rates increased/decreased by the Tender percentage accepted for miscellaneous works, treating the materials as belonging to the Railway.

19.0 **Employment of Graduate Engineers or equivalent or qualified Diploma Engineer based value of contract by Contractor:**

The contractor shall be responsible to ensure compliance with the provision of the Apprentices Act, 1961 and the Rules and Orders issued from time to time in respect of Apprentices directly or through petty Contractors or Sub-Contractors employed by him for the purpose of carrying out the Contract. 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 Railway 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 provision of the Act.

NOTE: The Contractors are required to engage apprentices when the work[s] is/are undertaken by them last for a period of one year or more and/or the cost of work is Rs. One lakh or more.

19.1 **Provision of Efficient and Competent Staff at work sites by the Contractor as per Clause 26 of Indian Railway Standard General Conditions of Contract April 2022.**

19.2 The Contractor shall place and keep on the works at all times efficient and competent staff to give the necessary directions to his workmen and to see that they execute their work in sound and proper manner and shall employ only such supervisors, workmen and labourers in or about the execution of any of these works as are careful and skilled in the various trades.

19.3 The Contractor shall at once remove from the works any agents, permitted sub-contractor, supervisor, workman or laborers who shall be objected to by the Engineer and if and whenever required by the Engineer, he shall submit a correct return showing the names of all staff and workmen employed by him.

19.4 In the event of the Engineer being of the opinion that the Contractor is not employing on the works a sufficient number of staff and workmen as is necessary for the proper completion of the works within the time prescribed, the Contractor shall forthwith on receiving intimation to this effect deploy the additional number of staff and labour specified by the Engineer within seven days of being so required and failure on the part of the Contractor to comply with such instructions will entitle the Railway to rescind the contract under Clause 62 of these conditions.

19.A **Deployment of Qualified Engineers at work sites by the Contractor as per Clause 26A of Indian Railway Standard General Conditions of Contract April 2022.**

19.A.1 The contractor shall also employ Qualified Graduate Engineer or equivalent or qualified Diploma Engineer (s), as prescribed in the tender documents.

19.A.2 In case the contractor fails to employ the Engineer, as aforesaid in Para 19A.1, he shall be liable to pay liquidated damages as at the rates, as prescribed in the tender documents.

19.A.3 No. of qualified engineers required to be deployed by the Contractor for various activities contained in the works contract shall be as under: -

1 **(a) For works to be executed is more than Rs. 2.0 Crore and above.**

Key Position	**Value of tender in Rs.**					**Minimum qualification**
	2 to 10 Cr.	10 to 20 Cr.	20 to 100 Cr.	> 100 Cr.	Min. Experience	
Chief Project Manager	-	-	-	1	10	BE (Civil)
Project Manager	-	1	1	2	5	BE (Civil)
Planning Engineer	-	-	1	1	3	BE (Civil)
Survey Alignment Expert	1	1	2	2	3	Diploma in Civil Engg. With experience in Auto CAD
Quality Control Expert	1	1	1	1	3	Diploma in Civil Engg.
Site Engineer			2	4	3	Diploma in Civil Engg.
Safety Manager			1	1	3	Engg. Graduate/Diploma with Specialization in Safety related filed.
Bridge Engineers For work involving Major Bridges	-	1	1	1	3	BE (Civil)

(b) One Qualified Diploma Holder Engineer when cost of work to be executed is more than Rs.25 lakh, but less than Rs.2.0 Crore.

1 Further, in case the contractor fails to employ the Qualified Engineer, as aforesaid in para 1 above, he, in terms of provisions of Clause 19A.2 [i.e. 26A.2 to the Indian Railway Standard General Conditions of Contract], **shall be liable to pay an amount of Rs.40,000 for graduate/degree holder and Rs.25,000 for diploma holder for each month or part thereof** for the default period for the provisions, as contained in Para 1[a] and 1[b] above respectively.

2 Provision for deployment of Qualified Engineers [Graduate Engineer or Diploma Holder Engineer] shall be for the values as prescribed above. However, for the works contract tenders, if it is considered appropriate by the tender inviting authority, not to have the services of qualified engineer, the same shall be so mentioned in the

tender documents by the concerned Executive with the approval of Officer not below the level of SAG Officer, for reasons to be recorded in writing.

3 For track related contractual works of values as specified above individuals having Diploma in Railway Engineering awarded by IPWE [India] shall also be considered as qualified Diploma Holder Engineers and Contractors for track contract works can employ such individuals at their work site on Indian Railways. [Ref: Railway Board letter No. 2012/CE-I/CT/0/20 dt. 12.07.2013].

19.5 **Contractor must establish laboratories at site for E/w test, concrete test, structural steel test, TMT/Cement test and other tests as per scope of work at their own cost as instructed by site engineer**.

19.6 For contract value more than 2.00 Cr. contractors must establish suitable site office/camp office of **minimum 500 Sqft** with all essential facilities at their own cost within one month from date of issue of LOA. Failure to comply this will result in penalty of 30,000/- (Thirty thousand) per month.

19.7 All Re-enforcement payment for DSR/USSOR items will be made in Sch. C-II and all cement payment for DSR/USSOR items will be made in Sch. C-I.

19.8 **The provision of Construction and Demolition Waste Management Rule 2016 issued by Ministry of Environment Forest and Climate Change dated 29.03.2016 and published in the Gazette of India, Part–II, Section-3, Sub-section (ii) are binding upon the Contractor. Contractor shall implement these provisions at worksites, for which no extra payment will be payable**.

20.0 **EMPLOYMENT OF RAILWAY'S SURPLUS LABOUR BY CONTRACTOR**:

20.1 The contractor may be required to engage surplus / retrenched casual labour of the E. C. Rly if found suitable up to the extent of twenty persons for each lakh or part of the value of the contract during the currency of contract. The terms of the employment between such labour and the contractor may be on mutual agreed forms, subject to the statutory provisions contained in the labour regulations and enactments. The contractor shall indemnify the Railway against any claims arising out of employment of such labour and the Railway shall not be a party to any disputes etc., arising out of the employment of such labour by the contractor.

20.2 The contractor shall engage local labour for unskilled work as far as possible and practicable. The Bonded Labour System [Abolition] ordinance 1975 and modifications there in from time to time apply to the present contract. The contractor shall duly observe the provision there of.

21.0 **COMPLIANCE TO THE PROVISIONS OF DIFFERENT ACTS:**

The contractor shall comply with the provision of

i) **Minimum Wages Act 1948.**
ii) **Apprentices Act 1961.**
iii) **Payment and Wages Act 1936.**
iv) **Contract Labour [Regulation and Abolition] Act 1970.**
v) **Contract Labour [Regulation and Abolition] Central Rules 1971.**
vi) **Provisions of Employees Provident Fund and Miscellaneous Provisions Act, 1952.**

vii) Workmen's Compensation Act.

viii) Mines Act-1952.

(ix) The building and other construction workers Act -1996.

(x) The building and other construction worker's welfare con Act -1996.

And the rules and orders issued from time to time for all the above acts.

21.1 **Provisions of Employees Provident Fund and Miscellaneous Provisions Act,1952:** The contractor shall comply with the provisions of Para 30 & 36-B of the Employees Provident Fund scheme, 1952; Para 3 & 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 & Miscellaneous Provisions Act, 1952", wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules.

(i) Contractor is to abide by the provisions of various labour laws in terms of above clause 54, 55, 55- A and 55-B of Indian Railways Standard General Conditions of Contract April,2022. In order to ensure the same, an application has been developed and hosted on website www.shramikkalyan.indianrailways.gov.in'. Contractor shall register his firm/company etc. and upload requisite details of labour and their payment in this portal. These details shall be available in public domain. The Registration/ updation of Portal shall be done as under:

(a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramikkalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration in the portal within 7 days of receipt of such request.

(b) Contractor once approved by any Engineer, can create password with login ID (PAN No.) for subsequent use of portal for all Letter of Acceptances (LOAs) issued in his favour.

(c) The contractor once registered on the portal, shall provide details of his Letter of Acceptances (LOAs) / Contract Agreements on shramik kalyan portal within 15 days of issue of any LOA for approval of concerned Engineer. Engineer shall update (if required) and approve the details of LOA filled by contractor within 7 days of receipt of such request.

(d) **After approval of LOA by Engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on shramikkalyan portal on monthly basis**.

(e) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour& payments made thereof after each wage period.

(ii) While processing payment of any 'On Account Bill' or 'Final Bill' or release of 'Advances' or 'Performance Guarantee / Security deposit', contractor shall submit a certificate to the Engineer or Engineer's representatives that "I have uploaded the correct details of contract labours engaged in connection with this contract

and payments made to them during the wage period in Railway's Shramikkalyan portal at ' www.shramikkalyan.indianrailways.gov.in' till ____Month, ____Year."

{**Authority: Railway Board's letters No. 2018/CE-I/CT/4, New Delhi, dated: 17.10.2018**}

Specimen copy of indemnity bond is given in tender document (Annexure-2 to Chapter 5)

21.2 **Provisions of "The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996" and "The Building and Other Construction Workers' Welfare Cess Act, 1996"(55-D of Indian Railways Standard General Conditions of Contract April 2022).**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]. The cess shall be deducted from contractor's bills as per provisions of the act.

22.0 **Price Variation Clause (PVC):**

22.1 **Applicability:** Price Variation Clause (PVC) shall be applicable only in tender having advertised value above **Rs.2 Crores**. Provided further that, in a contract where PVC is applicable, following shall be outside the purview of price adjustments (i.e. shall be excluded from the gross value of the work for the purpose of price variation) :

a) Materials supplied by Railway to the Contractors, either free or at fixed rate;

b) Any extra item(s) included in subsequent variation falling outside the purview of the Bill(s) of Quantities of tender, under clause 39. (1)(b) of these Standard General Conditions, unless applicability of PVC and 'Base Month' has been specially agreed, while fixing the rates of such extra item(s)

22.1.1 **Variation Clause (PVC) shall be applicable only for contracts of value as prescribed by the Ministry of Railways through instructions /circulars issued from time to time and irrespective of the contract completion period (See Top Sheet). Variation in quantities shall not be taken into account for applicability of PVC in the contract.**

22.1.2 Price Variation Clause (PVC) shall be applicable only in those contracts where tender conditions specifically permit it. Materials supplied free of cost by Railway to the Contractors and any extra NS item(s) included in subsequent variation falling outside the purview of the Schedule of Items of tender 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 materials 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.

Provided further that, in a contract where PVC is applicable, following shall be outside the purview of price adjustments (i.e. shall be excluded from the gross value of the work for the purpose of price variation) :

a) Materials supplied by Railway to the Contractors, either free or at fixed rate;
b) Any extra item(s) included in subsequent variation falling outside the purview of the Bill(s) of Quantities of tender, under clause 39. (1)(b) of these Standard General Conditions, unless applicability of PVC and 'Base Month' has been specially agreed, while fixing the rates of such extra item(s).

22.2 **Base Month:** The Base Month for 'Price Variation Clause' shall be taken as the one month prior to closing of tender, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following the Base month. The Price Variation shall be based on the average Price Index of the quarter under consideration.

22.3 **Validity:**

Rates accepted by Railway Administration shall hold good till completion of work and no additional individual claim shall be admissible except:

(a) Payment/recovery for increase/decrease in GST on works contract or imposition/removal of any tax/cess on Works Contract as per Clause37,
(b) Payment/recovery for overall market situation as per Price Variation Clause given hereunder.

22.4 Components of various items in a contract on which variation in prices be admissible, shall be steel, cement, ferrous material, non-ferrous material, insulators, zinc and other materials, labour, plant & machinery, fuel, explosives, detonators etc. Adjustment for variation in prices of these items shall be determined in the manner prescribed.

22.5 No price variation shall be admissible for fixed components.

22.6 The percentages of various components in various type of works shall be as specified for all item (s)/ Bill(s) of Quantities in tender document and the same shall be fixed as per table & classifications given below:

For Civil Engineering Works

SN	Classification / Components		1A, 2 & 3A	4A	5A	6A	7	8A	9A	1B, 3B, 4B, 5B,	1C, 3C, 4C, 5C,	3D, 4D, 5D, 6D,	3E, 4E, 5E, 6E,
1	*Fixed*	*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*	*15*
2	Labour	L_c	20	25	30	20	50	20	20	0	0	10	25
3	Steel	S_c	0	0	0	0	0	0	0	85	0	50	0
4	Cement	C_c	0	0	15	0	0	0	0	0	85	0	0
5	Plant Machinery & Spares	PM_c	30	15	5	20	15	20	30	0	0	10	30
6	Fuel & Lubricants	F_c	25	15	5	15	15	20	15	0	0	10	20
7	Other materials	M_c	10	15	30	30	5	25	20	0	0	5	10
8	Detonators & Explosive	E_c	0	15	0	0	0	0	0	0	0	0	0
Total			100	100	100	100	100	100	100	100	100	100	100

* It shall not be considered for any price variation.

The classification mentioned in the table above represents following type of item(s) in the work(s) -

1 **Earthwork in Formation**

1A All items excluding 1B or/and 1C

1B Item(s) for supply of Steel

1C Item(s) for supply of Cement

2 **Ballast Supply Works**

3 **Tunnelling Works (Without Explosives)**

3A All Item(s) excluding 3B or/and 3C or/and 3D or/and 3E

3B Item(s) for supply of Steel

3C Item(s) for supply of Cement or/and Grout

3D Item(s) for Fabrication & Erection of Structures including supply of Steel

3E Item(s) for Fabrication & Erection of Structures excluding supply of Steel.

4 **Tunneling Works (With explosives)**

4A All Item(s) excluding 4B or/and 4C or/and 4D or/and 4E

4B Item(s) for supply of Steel

4C Item(s) for supply of Cement or/and Grout

4D Item(s) for Fabrication & Erection of Structures including supply of Steel

4E Item(s) for Fabrication & Erection of Structures excluding supply of Steel.

5 **Building Works**

5A All Item(s) excluding 5B or/and 5C or/and 5D or/and 5E

5B Item(s) for supply of Steel

5C Item(s) for supply of Cement

5D Item(s) for Fabrication & Erection of Structures including supply of Steel

5E Item(s) for Fabrication & Erection of Structures excluding supply of Steel.

6 **Bridges & Protection work**

6A All Item(s) excluding 6B or/and 6C or/and 6D or/and 6E

6B Item(s) for supply of Steel

6C Item(s) for supply of Cement

6DItem(s) for Fabrication, Assembly, Erection& Launching of Girders including supply of Steel

6EItem(s) for Fabrication, Assembly, Erection &Launching of Girders excluding supply of Steel

7 **Permanent Way linking**

8 **Platform, Passenger Amenities**

8A All Item(s) excluding 8B or/and 8C or/and 8D or/and 8E

8B Item(s) for supply of Steel item/fittings

8C Item(s) for supply of Cement item

8D Item(s) for Fabrication & Erection of Structures including supply of Steel

8E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

9 <u>Any Other Works not covered in Classification 1 to 8</u>

9A All Item(s) excluding 9B or/and 9C or/and 9D or/and 9E

9B Item(s) for supply of Steel

9C Item(s) for supply of Cement or/and grout

9D Item(s) for Fabrication & Erection of Structures including supply of Steel

9E Item(s) for Fabrication & Erection of Structures excluding supply ofSteel

22.7 **Formulae:** The Amount of variation in prices in various components (labour, material etc.) shall be worked out by the following formulae:

i. $$L = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (L_Q - L_B) \times L_C}{L_B \times 100}$$

ii. $$M = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (MQ - MB) \times MC}{MB \times 1000}$$

iii $$F = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (F_Q - F_B) \times F_C}{F_B \times 100}$$

iv $$E = \frac{(W) \times (E_Q - E_B) \times E_C}{E_B \times 100}$$

v $$PM = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (PM_Q - PM_B) \times PM_C}{PM_B \times 100}$$

vi $$S = \frac{(W \text{ or } W_S \text{ or } W_{SF}) \times (S_Q - S_B) \times S_C}{S_B \times 100}$$

vii $$C = \frac{(W \text{ or } W_C) \times (C_Q - C_B) \times C_C}{C_B \times 100}$$

Where,

L Amount of price variation in Labour

M Amount of price variation in Materials

F Amount of price variation in Fuel

E Amount of price variation in Explosives

PM Amount of price variation in Plant, Machinery and Spares

S Amount of price variation in Steel Supply Item

C Amount of price variation in Cement Supply Item

T Percentage variation payable on the gross value of bill of Concreting (Bill(s) of Quantities for concrete items)

R Percentage variation payable on the gross value of bill of Ferrous Items (Bill(s) of Quantities for ferrous items)

N Percentage variation payable on the gross value of bill of Non-Ferrous Items (Bill(s) of Quantities for non-ferrous items)

I Percentage variation payable on the gross value of bill of Insulator (Bill(s) of Quantities for Insulator items)

G Percentage variation payable on the gross value of bill of General Works (Bill(s) of Quantities for General items)

Er Percentage variation payable on the gross value of erection (Bill(s) of Quantities for Erection Item)

LC % of Labour Component in the item(s)

MC % of Material Component in the item(s)

FC % of Fuel Component in the item(s)

EC % of Explosive Component in the item(s)

PMC % of Plant, Machinery and Spares Component in the item(s)

SC % of Steel Supply item Component in the item(s)

CC % of Cement Supply item Component in the item(s)

W Gross value of work done by Contractor as per on-account bill(s) excluding the Gross value of work under WS or/and WC or/and WSF or/and WF or/and WSFL or/and WFL and cost of materials supplied by Railway either free or at fixed rate,

WS Gross value of work done by Contractor for item(s) of supply of steel.

WC Gross value of work done by Contractor for item(s) of supply of cement and /or supply of grout material.

WSF Gross value of work done by Contractor for item(s) of Fabrication & Erection of Structures including supply of Steel.

WF Gross value of work done by Contractor for Fabrication & Erection of Structures excluding supply of Steel.

WSFL Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders including supply of Steel.

WFL Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders excluding supply of Steel.

LB Consumer Price Index for Industrial Workers -All India: Published in R.B.I. Bulletin for the base period

LQ Consumer Price Index for Industrial Workers -All India: Published in R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration

MB Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the base period

MQ Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration

FB The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai &Chennai, for the base period

FQ The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai &Chennai, for the 3 months of the quarter under consideration.

EB Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the base period.

EQ Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the average price index of 3 months of the quarter under consideration.

PMB Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction'– published in RBI (Reserve Bank of India) Bulletin, for the base period.

PMQ Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction'– published in RBI (Reserve Bank of India) Bulletin, for the average price index of 3 months of the quarter under consideration.

SB The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the base period.

SQ The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the 3 months of the quarter under consideration.

CB Index No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the base period

CQ No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the average price index of the 3 months of the quarter under consideration

RT IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is two months prior to date of inspection of material.

RO IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is one month prior to date of opening of tender.

PT IEEMA price index for Copper wire rods for the month which is two months prior to date of inspection of material.

PO IEEMA price index for Copper wire rods for the month which is one-month prior to date of opening of tender.

ZT IEEMA price index for Zinc for the month which is two months prior to date of inspection of material

ZO IEEMA price index for Zinc for the month which is one month prior to date of opening of tender

IT RBI wholesale price index for the sub-group "Insulators" for the month which is two months prior to date of inspection of material

IO RBI wholesale price index for the sub-group "Insulators" for the month which is one month prior to date of opening of tender.

22.8 The demands for escalation of cost shall be allowed on the basis of provisional indices as mentioned above in Clause 22.7. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.

22.9 **(1)** Relevant categories of steel for the purpose of operating Price Variation formula as mentioned in this Clause shall be as under:

SL	Classification	Rates to be used for calculating S_Q or S_B
1	Reinforcement bars and other rounds	Average of per tonne rates of 10mm dia TMT & 25mm dia TMT; confirming IS1786; Fe 500
2	All types and sizes of angles, channels and joists	Average of per tonne rates of 'Angle 75x75x6mm, Mild Steel Plate 10mm thickness and Channel 150x75mm; confirming IS2062, E250 Gr "A"
3	All types and sizes of plates	Average of per tonne rates of 'MS Plates 10mmthickness and 25mm thickness; confirming IS2062, E250 Gr "A"
4	Any other section of steel not covered in the above categories	Average of price for the 3 categories covered under SL 1, 2 & 3 in this table.

Relevant city for referring "JPC (Joint Plant Committee)" rates of steel items (SQ /SB) in different Zonal Railways shall be as under.

SL	City	Railway
1.	Delhi	Northern, North Central, North Eastern, North Western
2.	Kolkata	Eastern, East Central, East Coast, Northeast Frontier, South Eastern, Southeast Central
3.	Mumbai	Central, Western, West Central
4.	Chennai	Southern, South Central & South Western

Price Variation during Extended Period of Contract

22.10

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 Indian Railway Standard General Conditions of Contract April -2022. However, where extension of time has been granted due to Contractor's failure under Clause 17-B of the Standard 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 Indian Railway Standard General Conditions of Contract April-2022as 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 Indian Railway Standard General Conditions of Contract April-2022.

23.0 **DAMAGES BY ACCIDENTS/FLOODS/RAINS/CYCLONES, ETC.**

23.1 The Contractor[s] shall take all precautions against damages from accidents, floods or tides etc. No compensation shall be allowed to the contractor for his tools, plants, materials, machines and other equipment's lost or damaged by any cause whatsoever. The Contractor[s] shall make good the damages to any structure, plant or materials of every description belonging to the Railway Administration, lost or damaged by any cause during the course of construction work.

23.2 The Railway Administration will not be liable to pay the contractor any charges for rectification or repairs which may have occurred from any cause whatsoever, to any part of the new structures during currency of contract.

24.0 **SETTING OUT OF WORKS:**

The contractor shall be responsible for the correct setting out of all works in relation to original points, lines and levels of reference at his cost. The Contractor shall execute the work true to alignment, grade, levels and dimensions as shown in the drawing and as directed by the Engineer's representative and shall check these at frequent intervals. The Contractor shall provide all facilities like labour and instruments and shall cooperate with the Engineer's representative to check all alignments, grades, levels and dimensions. If, at any time, during the progress of the works any error shall appear or arise in any part of the work, the Contractor, on being required so to do by the Engineer's representative s hall, at his own cost rectify such errors, to the satisfaction of the Engineer's representative. Such checking shall not absolve the Contractor of his own responsibility of maintaining accuracy in the work. The Contractor shall carefully protect and preserve all bench marks, sight rails, pegs and other things used in setting out the work.

25.0 **MAINTENANCE PERIOD**:

25.1 The maintenance period in terms of Clause 47 and 48 of the Indian Railway Standard General Conditions of Contract April,2022corrected up to date of closing of tender **shall be 12 [Twelve] months from the date of issue of completion certificate for all works.**

25.2 The Contractor shall at all times during the progress and continuance of the works and also for the period of maintenance specified in the Tender Form after the date of issue of the certificate of completion by the Engineer or any other earlier date subsequent to the completion of the works that may be fixed by the Engineer, be responsible for and effectively maintain and uphold in good substantial, sound and perfect condition all and every part of the works and shall make good from time to time and at all times as often as the Engineer shall require, any damage or defect that may during the above period arise in or be discovered or be in any way connected with the works, provided that such damage or defect is not directly caused by errors in the contract documents, act of providence or insurrection or civil riot, and the Contractor shall be liable for and shall pay and make good to the Railway or other persons legally entitled thereto whenever required by the Engineer so to do, all losses, damages, costs and expenses they or any of them may incur or be put or be liable to by reasons or in consequence of the operations of the Contractor or of his failure in any respect.

25.3 **Certificate of Completion of Works:** As soon as in the opinion of the Engineer, the work has been completed and has satisfactorily passed any final test or tests that may be prescribed, the Engineer shall issue a certificate of completion duly indicating the date of completion in respect of the work and the period of maintenance of the work shall commence from the date of completion mentioned in such certificate. The certificate, inter alia, should mention that the work has been completed in all respects and that all the contractual obligations have been fulfilled by the Contractor and that there is no due from the Contractor to Railways against the contract concerned.

The Engineer may also issue such a certificate indicating date of completion with respect to any part of the work (before the completion of the whole of work), which has been both completed to the satisfaction of the Engineer and occupied or used by the Railway. When any Indian Railway Standard General Conditions of Contract April-2022 such certificate is given in respect of part of a work, such part shall be considered as completed and the period of maintenance of such part shall commence from the date of completion mentioned in the completion certificate issued for that part of the work.

25.4 **Contractor not Absolved by Completion Certificate:** The Certificate of Completion in respect of the works referred to in Sub-Clause (1) of this Clause shall not absolve the Contractor from his liability to make good any defects imperfections, shrinkages or faults which may appear during the period of maintenance specified in the tender arising in the opinion of the Engineer from materials or workmanship not in accordance with the drawings or specifications

or instruction of the Engineer, which defects, imperfections, shrinkages or faults shall upon the direction in writing of the Engineer be amended and made good by the Contractor at his own cost; and in case of default on the part of Contractor, the Engineer may employ labour and materials or appoint another Contractor to amend and make good such defects, imperfections, shrinkages and faults and all expenses consequent thereon and incidental thereto shall be borne by the Contractor and shall be recoverable from any moneys due to him under the contract.

25.5 **Final Supplementary Agreement:** After the work is completed or otherwise concluded by the parties with mutual consent, and taken over by the Railway as per terms and conditions of the contract agreement, and there is unequivocal no claim on either side under the Contract other than as mentioned in item 4 of Annexure XIV, the parties shall execute the Final Supplementary Agreement as per Annexure XIV of GCC April-2022.

25.6 **Approval only by Maintenance Certificate**: No certificate other than Maintenance Certificate, if applicable, referred to Clause 50 of the GCC April - 2022 shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the contract or any part thereof.

25.6.1 **Maintenance Certificate**: The Contract shall not be considered as completed until a Maintenance Certificate, if applicable, shall have been signed by the Engineer stating that the works have been completed and maintained to his satisfaction. The Maintenance Certificate shall be given by the Engineer upon the expiration of the period of maintenance or as soon thereafter as any works ordered during such period pursuant to Sub Clause (2) to Clause 48 of these Conditions shall have been completed to the satisfaction of the Engineer, and full effect shall be given to this Clause notwithstanding the taking possession of or using the works or any part thereof by the Railway. The Competent Authority to issue above Maintenance Certificate 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 mention that the work has been completed in all respects and that all the contractual obligations have been fulfilled by the Contractor and that there is no due from the Contractor to Railways against the contract concerned.

26.0 **Ant larval work**:

During execution of the works against this contract the Contractor[s] shall be responsible for ant larval work at his/their own cost.

27.0 **NON-ITEMIZED WORKS:**

Where item not covered by the schedules are to be executed, the rates for such non-item wised works shall be as per contract/SOP provision before commencement of such work or to be got executed through any other agency by the Railway at the discretion of the Railway Administration.

28.0 **TIME IS THE ESSENCE OF CONTRACT:**

Time is the essence of contract. All the works are required to be completed in all respects as stipulated by the Railway within the completion date. Progress shall be maintained strictly in accordance with the programme given by the Contractor and accepted by the Engineer-in-charge from time to time as per the programme chart as per [BAR/CPM/PERT chart] as will be finalized.

29.0 **INCENTIVE BONUS PAYMENT CLAUSE FOR WORKS RELATING TO THROUGHPUT ENHANCEMENT WORKS COMING UNDER PLAN HEADS "DOUBLING" and "TRAFFIC FACILITIES" (Not Applicable).**

[i] The incentive bonus payable shall not be more than 1% of the initial contract value or revised contract value whichever is less for every one month of early completion ahead of the original completion period or revised completion period whichever is less.
[ii] The maximum incentive payable shall not be more than 6% of the original contract value or revised contract value whichever is less.
[iii] This incentive scheme shall not apply if extension to the original completion period is given irrespective of on whose account [Railway's account or contractor's account].
[iv] Period less than a month will not be reckoned for the incentive bonus calculation.

30.0 **LEAD AND LIFT ON CONTRACTOR'S MATERIALS:**

No lead and lift for the contractor's materials is payable for the works executed under this contract or for the materials issued by the Railway mainly cement, steel, hume pipes, E.W. pipes, etc. unless otherwise specified.

31.0 **ISSUE OF RAILWAY MATERIALS:**

31.1 Only cement, steel or any other materials which if the Railway Administration is under obligation to supply for the specific items as considered necessary by the Railway Administration for the execution of works will be supplied by the Railway Administration free of cost. This material will be delivered from the nearest Railway store depot **as directed by the engineer-in-charge** and the contractor is required to make his own arrangements at his own cost for the carriage of the same to the site of work. This is, however, not applicable to works being carried out under USSOR with "Indian Railways Unified Standard Specifications." Cement will normally be supplied in bags of nominal weight of 50 kg the volume of which shall be taken as 1.23 cft for all calculation purposes.

31.2 In case of free supply of cement in bags by the Railway, the Contractor[s] is/are required to carry from Railway Depots as stated in Clause-31.1 above at his/their own cost. The cost of the empty cement bags will be recovered at the rates fixed by Railway from time to time. Railway reserves the right to take back empty cement bags if will be required for use.

31.3 For the works carried out under the East Central Railway Unified Standard Schedule of Rates -2021, the cost of the transportation and handling of Railway's materials will be paid to the contractor in accordance with the actual leads from the Railway's go-down at which the materials are supplied to the site of work at

the appropriate rate of the schedule of rates increased or decreased by the percentage quoted by the contractor as per terms of SOR.

31.4 The materials referred to above shall be issued to the contractor as per actual requirements. The contractor/s has/have to return excess materials if any issued, to the Railway's store depot in perfectly good condition to the railway at his/their own cost failing which the cost thereof shall be recovered from him/them at issue rates plus Railway's freight, handling, loading, supervision and other incidental charges at rates fixed by the Railways. To this will have to be added an increase of 100%.

31.5 If during the course of execution of the work, the District Engineer/Dy. Chief Engineer, in charge of the works consider it necessary to issue Railway materials in the interest of the Railway work i.e. to supply certain unforeseen materials not readily available in the market, the contractor will be paid at labour and materials rate and the cost of such materials will be recovered from the contractor at the market rate or Railway's issue rate whichever is higher plus 30.37%.

31.6 The contractor shall arrange GI binding wire for all reinforcement work at his own cost and the rate quoted by him shall be inclusive of this.

32.0 **CUTTING/UPROOTING OF TREES**.

32.1 No extra rate shall be paid for cutting or uprooting trees, grubbing root of trees or jungle clearance involved in any work under this contract.

32.2 The trees cut by contractor shall be property of the Railway.

32.3 If the section passes through forest land, the contractor or his labour is prohibited to cut the trees for the purpose of fire wood or for any other purpose. Cutting of trees as required under the items of works indicated in the tender schedules may be carried out strictly as directed by the Engineer-in-Charge of the work. Un-authorised cutting of trees will result in prosecution and imprisonment. It is the contractor's responsibility to cause no damage to the forest growth and any fuel required by the Contractor for his own use or for the use by his labourers, or for the work shall be arranged by the Contractor at his own cost. The Contractor shall take this aspect into consideration while quoting the rates against the tender.

33.0 **BLASTING**.

The contractor has to make his own arrangements to get the necessary license/permits for storing and use of explosive. The contractor has to make his own arrangements for procurement of explosive and detonators required for the work. Wherever a cutting passes through or near OHE Transmission Line or near the villages, only controlled blasting is to be resorted to as per schedule. The guidelines for blasting as provided in Indian Railways Unified Standard Specifications [Works and Materials] Volume –I and II to be followed.

34.0 **SECURITY DEPOSIT:**

34.1 The Security Deposit shall be 5% of the contract value. The Bid Security submitted by the Contractor with his tender will be retained/encashed by the Railways as part of security for the due and faithful fulfillment of the contract by the Contractor. Provided further that, if Contractor submits the Cash or Term Deposit Receipt issued from a Scheduled commercial bank of India or irrevocable Bank Guarantee Bond from a Scheduled commercial bank of India, either towards the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security, to the Contractor.

Balance of Security Deposit may be deposited by the Contractor in cash or Term Deposit Receipt issued from Scheduled commercial bank of India or irrevocable Bank Guarantee bond issued from Scheduled commercial bank of India, or may be recovered at the rate of 6% of the bill amount till the full Security Deposit is recovered. Provided also that in case of defaulting Contractor, the Railway may retain any amount due for payment to the Contractor on the pending "on account bills" so that the amounts so retained (including amount guaranteed through Performance Guarantee) may not exceed 10% of the total value of the contract.

The Irrevocable Bank Guarantee submitted towards Security deposit shall be initially valid up to the stipulated date of Maintenance period plus 60 days and shall be extended from time to time, depending upon extension of contract granted in terms of Clause 17A and 17Bof the Standard General Conditions of Contract.

Note: Security Deposit deposited in cash by the Contractor or recovered from the running bills of a Contractor or submitted by contractor as Term Deposit Receipt(s) can be refunded/returned to the contractor, in lieu of irrevocable Bank Guarantee bond issued from scheduled commercial bank of India, to be submitted by him, for an amount equal to or more than the already available Security Deposit, provided however that, in a contract of value less than Rs. 50 Crore, such refund/ return of the already available Security Deposit is permitted up to two times and in a contract of value equal to or more than Rs. 50 Crore, such refund / return of the already available Security Deposit is permitted up to three times.

34.2 In the event of any tenderer whose tender is accepted shall refuse to execute/dose not execute the contract documents as here in before provided, the Railway may determine that such tenderer has abandoned the contract and there upon his tender and the acceptance there of shall be treated as cancelled and the Railway shall be entitled to forfeit the full amount of the Bid security and to recover the damages for such default as per Clause No. 62 of Indian Railway Standard General Conditions of Contract April 2022 corrected up to the date of opening of tender.

34.3 **Refund of Security Deposit**: Security Deposit mentioned in clause (34) above shall be returned to the Contractor along with or after, the following:

(a) Final Payment of the Contract as per clause 51.(1) of GCC April 2022 **and**

(b) Execution of Final Supplementary Agreement or Certification by Engineer that Railway has No Claim on Contractor **and**

(c) Maintenance Certificate issued, on expiry of the maintenance period as per clause 50.1 above, in case applicable.

34.4 Forfeiture of Security Deposit: Whenever the contract is rescinded as a whole under clause 62 (1) of these conditions, the Security Deposit already with railways under the contract shall be forfeited. However, in case the contract is rescinded in part or parts under clause 62 (1) of these conditions, the Security Deposit shall not be forfeited.

34.5 No interest shall be payable upon the Bid Security and Security Deposit or amounts payable to the Contractor under the Contract, but Government Securities deposited in terms of Sub-Clause of this clause will be payable with interest accrued thereon.

35.0 **PERFORMANCE GUARANTEE:**

The procedure for obtaining Performance Guarantee is outlined below:

(a) The successful bidder shall have to submit a Performance Guarantee (PG) within 21 (Twenty-one) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 21 (Twenty-one) days and up to 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 12% per annum shall be charged for the delay beyond 21(Twenty-one) days, i.e. from 22ndday after the date of issue of LOA. Further, if the 60thday happens to be a declared holiday in the concerned office of the Railway, submission of PG can be accepted on the next working day.

In all other cases, if the Contractor fails to submit the requisite PG even after 60 days from the date of issue of LOA, the contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit Bid Security and other dues payable to the contractor against that particular contract, subject to maximum of PG amount. In case a tenderer has not submitted Bid Security on the strength of their registration as a Startup recognized by Department of Industrial Policy and Promotion (DIPP) under Ministry of Commerce and Industry, DIPP shall be informed to this effect.

The failed Contractor shall be debarred from participating in re-tender for that work.

(b) The successful bidder shall submit the Performance Guarantee (PG) amounting to 5% of the original contract value **and Additional Performance Guarantee as per clause 16 (4) (h)** if any of the following forms

(i) A deposit of Cash;

(ii) Irrevocable Bank Guarantee;

(iii) Insurance surety bond as per Annexure – XVII of GCC.

Note:

In case of extension of Date of Completion, selected bidder needs to submit extended Insurance Surety Bond/Fresh Insurance Surety Bond/fresh Performance Security, in any form as given above, before expiry of existing Insurance Surety Bond.

(iv) Government Securities including State Loan Bonds at 5% below the market value;

(v) Pay Orders and Demand Drafts tendered by any Scheduled Commercial Bank of India;

(vi) Guarantee Bonds executed or Deposits Receipts tendered by any Scheduled Commercial Bank of India;

(vii) Deposit in the Post Office Saving Bank;

(viii) Deposit in the National Savings Certificates;

(ix) Twelve years National Defence Certificates;

(x) Ten years Defence Deposits;

(xi) National Defence Bonds and

(xii) 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.

(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 upto 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) The value of PG to be submitted by the Contractor is based on original contract value and shall not change due to subsequent variation(s) in the original contract value.

(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.

(f) Whenever the contract is rescinded, the Performance Guarantee already submitted for the contract shall been encashed.

(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 President of India 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 clause 62 of these

conditions.

(h) If a tender is accepted on the quoted rates bidder which is below the advertised tender value, an additional performance security shall be submitted by the bidder as below:

Bid quoted in % of advertised cost	Additional Performance Guarantee (%)
Below 0-5% (inclusive)	NIL
Below 5%	5%

36.0 **UTILIZATION OF RAILWAY STONES:**

Notwithstanding the inclusion of some of the rates in the schedules with contractor's stones/aggregate, the Contractor[s] shall utilize the Railway's usable surplus stones, if available for use as such or by converting them into aggregate of sizes required. The cost of boulder shall be recovered for one cubic metre net of such stones as per the prevailing rate of the area or @ Rs.370/- per cum or as may be decided by the Railway [after deducting 25% for voids]. The Contractor[s] shall collect the boulders from locations within the limit of contract section wherever they are offered to him within the section limits. The rate per cubic meter net includes royalty, collection as required. The rate also includes loading, transportation of cut spoils which has to be done by the Contractors at his/their own risk and cost and the rate is towards the cost of cut stone available on "as is and where is basis". The boulder issued to the Contractor[s] for the above purpose will be used only for the works of the agreement and shall neither be disposed off nor be used for any other agreement.

37.0 **GST, ROYALTY OR ANY OTHER TAXES:**

37.1 **RECOVERY OF INCOME TAX**

i. Income Tax as per prevailing rate will be recovered of the gross amount of each bill from all the bills of the contractor as per Income Tax Act, as introduced through the Finance Act-1972. A surcharge as per prevailing rate on the amount of Income Tax so deducted will also be recovered from the contractor's bills. This is further subject to increase or decrease as per extant instructions/Act/Rules in this regard.

ii Subsequent to the enactment of GST Act, Para (a) of Clause 6, Part-I of Indian Railway Standard General Conditions of Contract April 2022 shall be read as under:

Care In Submission of Tender

(a) 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 provision in Clause-37 of the Indian Railway Standard General Conditions of Contract April 2022 for the completion of works to the entire satisfaction of the Engineer.

(b) Tenderers will examine the various provisions 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. & 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.

(c) 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 railway 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.

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

(e) contractor shall be liable to pay/refund the amount collected as GST to the Indian Railways along with interest and penalties, if any imposed by the authorities, in case GST input tax credit of Indian Railways is denied/rejected by the tax authorities due to reasons mentioned below but not limited to:

Wrong/incorrect invoices issued by contractor;

No-filing of GST returns;

Non-payment of GST collected from Indian Railways to the authorities;

Any other non-compliance done by contractor;

General Indemnity: Contractor hereby agrees to indemnify and hold harmless the Indian railways from and against any and all losses, including loss on account of Input Tax credit and all losses incurred by the Indian Railways relating to or arising out of or in connection with any actual or threatened claim, legal action, proceedings, prosecution or inquiry by or against the Indian Railways arising out, directly or indirectly, of failure by the contractor to comply with the provisions of GST and related laws, or based upon or arising from any failure by the contractor.

Retention Money: Any payment liable to be paid by Indian Railways to contractor against the goods or services or both supplied by such contractor to Indian railways shall be kept on hold in case supplier makes any non-compliance of any of the GST law provisions including non-reporting of invoices in GST returns. Such payment shall be released after proper verification of records and availability of ITC to Indian Railways as per provisions of GST law.

iii. **NEW STATUTORY TAXES:**

Any other taxes, which have already been levied by State Govt. Or Central Govt. on or before opening/negotiation, but not mentioned in the Tender Document, will have to be paid by the tenderer. The schedule rate considered inclusive of all taxes taken or levied by state/central govt. on or before opening/negotiation of the tender.

Additional statutory taxes if any, is levied subsequent to the date of opening/negotiation of tender may be reimbursed on submission of proof of document depositing such taxes to the concerned States Govt. or Central Govt.

37.2 **Provisions of "The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996" and "The Building and Other Construction Workers' Welfare Cess Act, 1996" (55-D of Indian Railways Standard General Conditions of Contract** April 2022**).:**The tenderers, for carrying out any construction work, shall get themselves registered with 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.).The Cess shall be deducted from contractor's bills as per provisions of the Act.

37.3 **ROYALTY**:

37.3.1 The minerals being used by the contractor should be purchased from valid authorized lease/permit holder/ authorized dealer. It will be insured by Engineer.

In case of moorum & earth these permits can be obtained from District Mining officer after entering into an agreement with land holder from where mineral is to be extracted.

37.3.2 The Railway shall do the followings to prevent evasion of royalty and illegal mining.

(i) Bill preferred by works contractor in which minor mineral has been used, must be accompanied with an affidavit form 'M' with particulars in form 'N' of the rules along with a photocopy of said affidavit and particulars. Bill should not be entertained unless accompanied with aforesaid documents.

(ii) The photocopy of the affidavit and the particulars received with the Bill should be sent to District Mining officer/ Assistant Mining officer within whose jurisdiction the minerals was allegedly purchased, for verification. If the said affidavit or information is found wrong, Mining officer may take necessary/ appropriate action against the contractor as per rules.

38.0 **ASSESSMENT OF ROCK REQUIRING BLASTING**:

Assessment of quantities of rock requiring blasting shall be based on cross sectional measurements. Where such measurement is found to be difficult, as in the case of isolated boulder, payment shall be based on stack measurement of blasted rocks/boulders subject to deduction of 25% volume towards voids.

The classification of soil and certification thereto only to be done by Dy. Chief Engineer or higher Engineering officials in charge of the work.

39.0 **APPROVAL OF SAMPLES OF MATERIALS**

All materials to be used in the work by the contractor shall be subject to the prior approval of the Engineer-in-charge of the work. Before using in the works, the contractor[s] shall submit samples of materials and arrange for the supplies, for the work only, if the same are approved.

40.0 **IS CODES/IRS's SPECIFICATIONS.**

40.1 [i]Whenever any reference to Code, Specification, Act, etc. is made in the documents, it shall be taken as a reference to the latest version thereof, including all amendments and corrections thereto or otherwise specified.

40.2 [ii]The Contractor shall not be entitled to any extra payment on any account for compliance with the various provision of I.S. Specifications and Additional Special Conditions. The rate indicated in the Schedule shall be deemed to include all works required to be done in compliance with the specifications.

41.0 **PRE-CAUTION TO BE TAKEN WHILE PLYING OF VEHICLES ADJACENT TO RUNNING LINES TO PREVENT ACCIDENT TO TRAINS.**

41.1 Vulnerable locations where construction work adjacent to running line can cause accident should be protected by suitable strong barrier which should be included as a paid item in contract schedule. These locations should be decided by Executive In-charge of the work at the beginning of construction and intimated to contractor in writing.

41.2 The barrier should be painted by retro-reflective paint at suitable interval to give warning at night.

41.3 No work adjacent to running track should be carried out at night without express written authority from the Engineer In-charge of the work. In fact, no contractor should do any kind of night working unless the Executive Engineer In-charge of the work gives the specified spots according to priority of work where night working has to be done. These spots should be well lit at night. In addition, the work should always; be done under supervision of Railway supervisors in addition to Contractor's supervisors. Suitable Railway personnel should be posted at site with safety equipment's like banner flags, hand signal flags, hand signal lamps and detonators to arrange protection of trains. The Railway supervisors in charge of such work should also give suitable message to adjacent stations as well as through control for issuing caution orders to the trains approaching the work site. For this purpose, he should be equipped with field telephone/walkie talkie set.

41.4 The Contractor shall not allow any road vehicle belonging to him or his suppliers etc., to ply in railway land next to the running line. If for execution of certain works viz, earthwork for parallel Railway Line and supply of ballast for new or existing rail line gauge conversion etc., road vehicles are necessary to be used in Railway land next to the railway line, the Contractor shall apply to the Engineer-

in –Charge for permission giving the type and No. of individual vehicles, names and License particulars of the drivers, location, duration and timings for such work/movement. The Engineer in Charge or his authorized representative will personally counsel, examine and certify, the road vehicle drivers, Contractor's flagmen and supervisor and will give written permission giving names of road vehicle drivers, Contractor's flagmen and supervisor to be deployed on the work, location, period and timing of the work. This permission will be subject to the following obligatory conditions.

[i] The road vehicles will ply only between sunrise and sunset.

[ii] Nominated vehicles and drivers will be utilized for work in the presence of at least one flagman and one supervisor certified for such work.

[iii] The vehicles shall ply 6m clear of track. Any movement/work at less than 6m and up to minimum 3.5m clear of track centre, shall be done only in the presence of railway employee authorized by the Engineer-in-Charge. No part of the road vehicle will be allowed at less than 3.5m from track centre. Cost of such railway employee shall be borne by the Railway.

[iv] The Contractor shall remain fully responsible for ensuring safety and in case of any accident, shall bear cost of all damages to this equipment and new and also damages to railway and its passengers.

[v] The Contractor shall also be bound by the provisions of this agreement to ply the road Vehicle only with adequate margin of safety, well clear of the fixed structure profile of infringement, as stipulated in the rules made under the Indian Railway's Act and to seek and be guided by the Signals and other directions of any look-out men or other personnel retained for the purpose of ensuring safety, and to ensure extra care and vigilance while turning, reversing or moving the road Vehicles in any other manner at an inclination to the running Railway Track or the siding as the case may be. The Contractor shall employ necessary look-out; men also at his own cost, irrespective of any other arrangement that Railway may make in this regard.

[vi] Any breach of these conditions by the Contractor and/or his agents affecting the safety of movement of Trains, Engines, or other rolling stock of the Railway shall constitute a breach of Contract by the Contractor entailing liability with termination of contract for default on the part of the Contractor.

42.0 **Employee Provident Fund and Miscellaneous Provisions:** The contractor shall comply with the provisions of Para 30 and 36-B of the employees Provident Fund Scheme, 1952; Para 3 and 4 of employees' Pension Scheme, 1995 and Para 7 and 8 of Employees Deposit Linked Incurrence Scheme, 1976; as modified from time to time through enactment of Employees Provident Fund and Miscellaneous Provisions Act, 1952, wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the rules.

43.0 **Tenderers are advised not to put their own special conditions particularly related to specification and nature of work.**

However, in tenders of special nature like in-situ flash butt welding, Fusion welding of by Alumino Thermit process, fabrication and launching of steel girder, box pushing, epoxy grouting in distressing bridges, sinking of tube well etc., the condition quoted/clarification sought by the tenderers along with their offer should not be considered as "Conditional tender/offer". However, the same shall be evaluated and considered by the Railway as per the extent provisions

44.0 **Payment of advances to contractors**:

(a) **General:** The applicability of this clause to this tender is subject to high value of tenders of value **Rs 50.00 (Fifty) crore** and above each as mentioned in Chapter –I of these documents. The Railway may consider sanction of the advances to the contractors vide sub-clause (b) & (c) only for works of high value of **Rs 50.00 (Fifty) crore** and above each provided further that **the contractor has made a request with adequate justification for such advance(s) along with his tender. Request for grant of such advance shall not be entertained, if the same is made at any subsequent point of time**.

(b) If payment(s) of Advances are applicable in the contract, as mentioned in the Tender Documents, Railway shall make payment(s) of Interest-bearing advances, on the request of contractor. The payment and recovery of such Advances shall be made asunder:

(a) Mobilization Advance–

This shall be limited to 10% of the Contract value and shall be paid in 2 stages:
Stage 1– 5% of Contract Value on signing of the contract agreement.
Stage 2– 5% on mobilization of site-establishment, setting up offices, bringing in equipment and actual commencement of work.
The stage 1 of advance shall be payable immediately after signing of contract agreement.

The stage 2 of advance shall be payable at the time of mobilization, only after submission of and utilization certificate by the contractor that the Stage 1 advance has been properly utilized in the contract.

These Advances shall be payable against irrevocable guarantee (Bank Guarantee, FDRs) from a scheduled commercial bank of India of at least 110% of the value of the sanctioned advance amount (covering principal plus interest).

(b) Advance Against Machinery and Equipment–

This advance shall be limited to a maximum of 10% of the contract value against new Machinery & Equipment, involving substantial outlay, brought to site and essentially required for the work. This advance shall not exceed 75% of the purchase price of such Equipment and shall be payable when Equipment is hypothecated to the President of India by a suitable bond or alternatively covered by an irrevocable Bank Guarantee from a scheduled commercial bank of India

for full cost of the Plant & Equipment in a form acceptable to Railways. The Plant & Equipment shall be insured for the full value and for the entire period, they are required for the work. This Plant & Equipment shall not be removed from the site of work without prior written permission of the Engineer. No advance should be given against old Plant &Machinery.

(c) The advances under sub clause (a) and (b) above, are subject to the following conditions -

(i). The full amount of Advances shall be recovered from contractor dues. The recovery shall commence when the value of contract executed reaches 15% of original contract value and shall be completed when the value of work executed reaches 85% of the original contract value. The instalments on each "on account bill" will be on pro-rata basis.

Interest shall be recovered on the advance outstanding for the period commencing from the date of payment of advance till date of particular on-account bill (through which recovery of principal is effected) and adjusted fully against on-account bill along with pro-rata principal recovery. In the event of any short-fall, the same shall be carried forward to the next on-account bill and shall attract interest.

(ii). The advances shall be used by the Contractor for the purpose of the Contract, and for the purpose for which they are paid. Under no circumstances, shall the advances be diverted for other purposes. Any such diversion shall be construed as a breach of the Contract and the Contractor shall be asked to return the advance at once and pay interest at 15% per annum till the advance is recovered back from him. The Contractor shall return the advance and pay the interest in one go without demur. The Contractor, if required by the Engineer shall provide the details of utilization of Mobilization advance.

(iii). If the Contractor is found to have contravened the provision, it will constitute a breach of contract and Railway shall be entitled to terminate the contract and forfeit his Performance Guarantee as well as Security Deposit.

(iv). In cases, where the Contract is rescinded as per clause 62 of the contract or short closed under any other condition(s) of the contract, without making full recovery of advances and accrued interest thereon, by the Railway, such balance of advances and accrued interest thereon shall immediately become due and payable by the Contractor to the Railway. The same shall be recovered from any due of Contractor with the Government of India.

(d) **Advance For Accelerating Progress of The Work During Course of Execution of Contract:**

The advance is to be decided on the merits of each case for contract lying within the powers of General Manager (up to Rs.100 crore or less or as decided & circulated by Board from time to time) and shall be restricted to a maximum of 5% of contract value or Rs. 1 Crore whichever is less. This is to be granted by the General Manager on the recommendations of the Chief Engineer in-charge in consultation with the Associate Finance.

(e) **Advance in Exceptional Cases: -**

General Manager are further empowered to grant advances in exceptional cases up to a maximum of Rs. 5 lacs in respect of even contracts of value of less than Rs. 50 lacs, if considered absolutely essential, depending on the merits of each case and circumstances in each situation, to be recommended by the Chief Engineer in-charge and in consultation with the Associate Finance.

(f) **The Above Advances Are Subject to The Following Conditions: -**

(i) The advance shall carry an interest at the rate to be decided by the Railway Board and communicated at the beginning of every financial year, to be applicable for tenders to be opened in that financial year.

(ii) Advances except those against machinery and equipment, shall be payable against irrevocable guarantee (Bank Guarantee, FDRs, KVPs/NSCs) of at least 110% of the value of the sanctioned advance amount (covering principal plus interest). The Bank Guarantee shall be from a Nationalized Bank in India or State Bank of India in a form acceptable to the Railways.

(iii) The recovery shall commence when the value of contract executed reaches 15% of original contract value and shall be completed when the value of work executed reaches 85% of the original contract value. The installments on each "on account bill" will be on pro-rata basis.

(iv) That the grant of advance is primarily in Railway's own interest.

(v) That a contract does not receive advances for same work form different officers.

(vi) That arrangements are made with the Accounts Officer for proper accounts being kept with regard to payment and recovery of these advances and

(vii) That all necessary precautions are taken to secure Government from the possibility of loss and for preventing the system becoming more general or continuing longer than what may be absolutely necessary for proper of the work.

(g) **Method of Recovery of Interest: -**

Interest shall be recovered on the advance outstanding for the period commencing from the date of payment of advance till date of particular on-account bill (through which recovery of principal is effected) and adjusted fully against on-account bill along with pro-rata principal recovery. In the event of any short-fall, the same shall be carried forward to the next on-account bill and shall attract interest.

The Bank Guarantee for such advances shall clearly cover at least 110% of the value of the sanctioned advance amount (covering principal plus interest). **The rate of interest shall be RBI Bank Rate +5%(five Percent) simple interest for the tenders to be opened in the financial year 2 onwards and rate of interest shall be reviewed after three years**

(**Authority:** Railway Board's letter No. 2007/CE-I/CT/18 Pt.3, dated 23.05.2012, 2007/CE-I/CT/18 Pt.3 dt.22.01.18, 2018/CE-I/CT/1 dated

15.02.19,2018/CE-I/CT/1 dated 10.03.2022 &2018/CE-I/CT/1 dated 12.05.2023).

45.0 **Stage payment on supply of steel:**

This clause will be applicable for works contract of value more than **Rs 15.00 (Fifteen) crore** each. Stage payment will be applicable for steel physically brought by the contractor to the site (even before its actual use in the work), subject to the following aspects: -

a) The material shall be strictly in accordance with the contract specifications.
b) The tender schedule shall provide for individual NS rate to be quoted by the tenderers for steel separately.
c) The material shall be delivered at site and properly stored under covered sheds in measurable stacks.
d) The quantities of materials shall be brought to the site only in such installments that would facilitate smooth progress of work and consumed in reasonable time.
e) Proper accountable in the material registers to be maintained in the prescribed format at the site for the receipt and use of the material.
f) Ownership of such material shall be deemed to vest with the Railways for which the contractor should submit an indemnity bond in prescribed format.

Indemnity Bond Performa is available at Annexure-2 of Chapter-5

g) Before releasing the stage payment, the contractor shall insure the material at his own cost in favour of Railways against theft, damages, fire etc.
h) Stage payment in all such cases shall not be more than 75% of the rate of steel awarded in the contact the balance payment shall be released only after the material is actually consumed in the work.
i) The price variation claim for steel would continue to be governed as per extant PV clause and with reference to delivery at site.
j) The quantity of steel to be brought to site, and for which stage payment will be admissible, shall be worked out by the contractor in consultation with the Engineer, for the first quarter, from date of issue of LOA + 15 days. Subsequent supply to site shall be done with approval of Engineer, on a quarterly basis, based on actual progress.

46.0 **PURCHASE PREFERENCE**: **Not Applicable**

47.0 **REFUND OF SECURITY DEPOSIT**

47.1 Security Deposit mentioned in sub clause (1) above shall be returned to the Contractor along with or after, the following:

(a) Final Payment of the Contract as per clause 51. (1) Indian Railway Standard General Conditions of Contract April 2022 and
(b) Execution of Final Supplementary Agreement or Certification by Engineer that Railway has No Claim on Contractor and

(c) Maintenance Certificate issued, on expiry of the maintenance period as per clause 50.(1) of Indian Railway Standard General Conditions of Contract April-2022, in case applicable.

47.2 Forfeiture of Security Deposit: Whenever the contract is rescinded as a whole under clause 62 (1) of Indian Railway Standard General Conditions of Contract April-2022 the Security Deposit already with railways under the contract shall be forfeited. However, in case the contract is rescinded in part or parts under clause 62 (1) of Indian Railway Standard General Conditions of Contract April-2022, the Security Deposit shall not be forfeited.

47.3 No interest shall 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 16.(4)(b) of this clause will be payable with interest accrued thereon.

48.0 **REFUND OF PERFORMANCE GUARANTEE (P.G)**

The Performance Guarantee (P.G) shall be released after satisfactory completion of work based on the 'Completion Certificate' as issued by the Competent Authority. 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, and then a JA Grade Officer (concerned with the work) should issue the certificate. The certificate, inter-alia, should mention that the work has been completed in all respect and that all the contractual obligations have been fulfilled by the contractors and that there is no due from the contractor to Railways against the contract concerned. Before releasing the Performance Guarantee (P.G), an unconditional and unequivocal no claim certificate from the contractor concerned shall be obtained.

No interest will be payable on the Performance Guarantee (P.G).

49.0 **Conciliation of Disputes:**

(i) This clause is applicable in the tender having advertised value less than or equal to Rs 50 Crore.

(ii) All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the Contractor to the "Chief Engineer" or "Divisional Railway Manager" through "Notice of Dispute" provided that no such notice shall be served later than 30 days after the date of issue of Completion Certificate by the Engineer. Chief Engineer or Divisional Railway Manager shall, within 30 days after receipt of the Contractor's "Notice of Dispute", notify the name of conciliator(s) to the Contractor.

(iii) The Conciliator(s) shall assist the parties to reach an amicable settlement in an independent and impartial manner within the terms of contract.

(iv) If the parties reach agreement on a settlement of the dispute, they shall draw up and sign a written settlement agreement duly signed by Engineer In-charge, Contractor and conciliator(s). When the parties sign the settlement agreement, it shall be final and binding on the parties.

(v) The parties shall not initiate, during the conciliation proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.

(vi) The conciliation proceedings shall be terminated as per Section 76 of 'The Arbitration and Conciliation Act,1996.

49.1 **Matters Finally Determined by the Railway**: All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the Contractor to the GM and the GM shall, within 120 days after receipt of the Contractor's representation, make and notify decisions on all matters referred to by the Contractor in writing provided that matters for which provision has been made in Clauses 7(j), 8, 18, 22(5),39.1, 39.2, 40A,43(2), 45(i)(a), 55, 55-A(5), 57, 57A,61(1), 61(2),62(1), 63(iv) and 63.2.11of the Standard General Conditions of Contract or in any Clause (stated as excepted matter)oftheSpecialConditionsoftheContract,shallbedeemedas'exceptedmatters'(mattersnotarbitral)and decisions of the Railway authority, thereon shall be final and binding on the Contractor; provided further that 'excepted matters' shall stand specifically excluded from the purview of the Dispute Adjudication Board (DAB) and Arbitration.

49.2 **Dispute Adjudication Board (DAB):** This clause is applicable in the tender having advertised value more than Rs 50Crore.

49.2.1 Any dispute/s if not settled with the Engineer, shall be referred to DAB.

The DAB shall consist of a panel of three Retired Railway Officers, retired not below senior administrative grade (SAG). The DAB shall be formed within 90 days of signing of Contract Agreement. For this purpose, a panel of DAB members shall be maintained in the General Manager's office. The complete panel, which shall not be less than five members, shall be sent by Chief Engineer to the Contractor to nominate one member of the DAB from the panel as Contractor's nominee within two weeks of receipt of the panel. On receipt of Contractor's nominee, the Chief Engineer shall nominate one member from the same panel as Railway nominee for the DAB. Both above nominees shall jointly select presiding member of the DAB from the same panel.

49.2.2 The appointment of DAB shall be effectuated by way of a tri-partite agreement among the Railway, Contractor and the respective DAB members. The terms of the remuneration of each member shall be as fixed by Ministry of Railways from time to time. Each party shall be responsible for paying one-half of this remuneration.

49.2.3 If one or more of the members appointed refuses to act as DAB member, or is unable or unwilling to perform his functions as DAB member for any reason whatsoever or dies or in the opinion of the Chief Engineer fails to act without undue delay, the parties shall terminate the mandate of such DAB member and

thereupon new DAB member shall be appointed in the same manner, as the outgoing DAB member had been appointed.

49.2.4 The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Railway or the Contractor acting alone. Unless otherwise agreed by both the Parties, the appointment of the DAB (including each member) shall expire upon expiry of this Contract Agreement.

49.2.5 Before start of DAB proceedings, each DAB member shall give the following certificate to the Railway and the Contractor:

"I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. Further, I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality."

49.2.6 DAB proceedings shall be conducted as decided by the DAB. The DAB shall give its decision within 90 days of a Dispute referred to it by any of the Parties, duly recording the reasons before arriving at the decision. The DAB shall decide the issue within terms and conditions of the contract. This time limit shall be extendable subject to the Parties mutual agreement.

49.2.7 The DAB decision shall not be binding on both the Parties. In case any party is not satisfied by the decision of DAB, then the aggrieved party may approach Arbitral Tribunal for arbitration proceedings.

49.2.8 No dispute shall be referred to Arbitral Tribunal unless the same has been referred to DAB for adjudication. However, in case DAB is not formed due to any reason, the disputes can be directly referred to Arbitral Tribunal to adjudicate the dispute.

49.2.9 In the specific cases of any misconduct by any of the members of the DAB, the parties shall have the right to specifically bring it to the notice of the DAB such conduct, through a statement filed with necessary documents in proof of such misconduct and the DAB, after taking NOTICE of such conduct initiate the replacement of the member concerned, in the same manner the member to be replaced was appointed.

49.2.10 Once the decision is given by DAB, DAB cannot review the decision at its own or on the request of one party, unless both parties agree for review of decision by DAB.

49.2.11 In case DAB decision is not challenged by either party within 180 days of receipt of decision of DAB, the decision shall be considered as final and parties would be barred for referring the same to Arbitral Tribunal for adjudication.

49.2.12 The obligation of the Railway and the Contactor shall not be altered by reasons of issue being or under reference to DAB.

49.2.13 The DAB shall conduct the proceedings at any convenient venue which shall be decided by DAB in consultations with parties.

49.2.14 It is a term of this contract that the Parties shall not approach any Court of Law for settlement of such disputes or differences unless an attempt has first been

made by the parties to settle such disputes or differences through DAB and Arbitral Tribunal.

50.0 **Demand for Arbitration:**

(i)(a) In the event of any dispute or difference between the parties hereto as to the construction or operation of this contract, or the respective rights and liabilities of the parties on any matter in question, dispute or difference on any account or as to the withholding by the Railway of any certificate to which the contractor may claim to be entitled to, or if the Railway fails to make a decision within 120 days, then and in any such case, but except in any of the "excepted matters" referred to in GCC Clause 63.1 of these Conditions, the contractor, after 120 days but within 180 days of his presenting his final claim on disputed matters shall demand in writing that the dispute or difference be referred to arbitration.

(i)(b) Arbitration as a method of dispute resolution should not be routinely or automatically included in procurement contacts/tenders, especially in large contracts

(i)(c) As a norm, arbitration as a method of dispute resolution may be restricted to disputes with a value less than Rs. 10 crores. This figure is with reference to the value of the dispute (not the value of the contract, which may be much higher).

(i)(d) inclusion of arbitration clauses covering disputes with a value exceeding Rs. 10 crore, should be based on careful application of mind and recording of reasons and with the approval of an officer not below the rank of Senior Administrative Grade (SAG) or the Accepting Authority of the tender whichever is higher

(ii)a The demand for arbitration shall specify the matters which are in question, or subject of the dispute or difference as also the amount of claim item-wise. Only such dispute or difference, in respect of which the demand has been made, together with counter claims or set off, given by the Railway, shall be referred to arbitration and other matters shall not be included in the reference.

(ii)b The parties may waive off the applicability of sub-section 12(5) of Arbitration and Conciliation (Amendment) Act 2015, if they agree for such waiver, in writing, after dispute having arisen between them, in the format given in Annexure XV of GCC of these condition.

(iii)(a) The Arbitration proceedings shall be assumed to have commenced from the day, a written and valid demand for arbitration is received by the Railway.

(iii)(b) The claimant shall submit his claim stating the facts supporting the claims along with all the relevant documents and the relief or remedy sought against each claim within a period of 30 days from the date of appointment of the Arbitral Tribunal.

(iii)(c) The Railway shall submit its defense statement and counter claim(s), if any, within a period of 60 days of receipt of copy of claims from Tribunal thereafter, unless otherwise extension has been granted by Tribunal.

Place of Arbitration: The place of arbitration would be within the geographical limits of the Division of the Railway where the cause of action arose or the

(iii)(d) Headquarters of the concerned Railway or any other place with the written consent of both the parties.

(iv) No new claim shall be added during proceedings by either party. However, a party may amend or supplement the original claim or defence thereof during the course of arbitration proceedings subject to acceptance by Tribunal having due regard to the delay in making it.

(v) If the contractor(s) does/do not prefer his/their specific and final claims in writing, within a period of 90 days of receiving the intimation from the Railways that the final bill is ready for payment, he/they will be deemed to have waived his/their claim(s) and the Railway shall be discharged and released of all liabilities under the contract in respect of these claims.

50.1 **Obligation During Pendency of Arbitration:** Work under the contract shall, unless otherwise directed by the Engineer, continue during the arbitration proceedings, and no payment due or payable by the Railway shall be withheld on account of such proceedings, provided, however, it shall be open for Arbitral Tribunal to consider and decide whether or not such work should continue during arbitration proceedings.

50.2 **Appointment of Arbitrator:**

(a) The Arbitral Tribunal shall consist of a panel of three arbitrators. General Manager/Additional General Manager will appoint two arbitrators, one railway nominee and other from among the contractor's nominee. Contractor can recommend his nominee either from approved panel of Railways or from approved panel of Indian Council of Arbitration (ICA) within 30 days from the date of dispatch of approval of written and valid acceptance of demand for arbitration by the General Manager/Additional General Manager.

(i) If contractor wants to choose his nominee from Railway panel, the Railway will send a panel of at least four (4) names of retired Railway Officers empaneled to work as Arbitrator within 30 days from the day when a written and valid demand for arbitration is received by the General Manager/Additional General Manager. Contractor will be asked to suggest to General Manager/Additional General Manager at least 2 names out of the panel for appointment as Contractor's nominee within 30 days from the date of dispatch of the request by Railway. The General Manager/Additional General Manager shall appoint at least one out of them as the Contractor's nominee within 30 days from the receipt of the names of Contractor's nominees. The railway panel shall be provided free of cost to the contractor

(ii) If contractor wants to choose his nominee from Indian Council of Arbitration panel, Contractor will send at least 2 names of Arbitrators from the ICA panel for appointment as Contactor's nominee within 30 days from the date of dispatch of the request by Railway. The General Manager/Additional General Manager shall appoint at least one out of them as the Contactor's nominee within 30 days from the receipt of the names of Contractor's nominees. Nomination and

appointment of arbitrators from ICA panel shall be as per the ICA Rules for Domestic Commercial Arbitration and amended from time to time.

Some general guidelines of ICA Rules for Domestic Commercial Arbitration are as under: -

i. Contractor may access the ICA's panel of arbitration through ICA's official webpage: https ://icaindia.co.in/pdf/Engineers.pdf.

ii. A formal request for nomination shall be submitted to ICA, accompanied by:

a. A brief Statement of Claim outlining the nature and quantum of the disputes.

b. A copy of the relevant contract and any supporting documents.

c. A copy of the notice intimating the other party of the initiation of arbitration proceedings, with proof of delivery (if any).

iii (a). Ad-hoc appointment fees for the nomination and appointment of arbitrators shall be as per the ICA Rules for Domestic Commercial Arbitration and revised from time to time and shall be submitted along with the request.

The serving railway officer working in arbitral tribunal in the ongoing arbitration cases as per clause 50(2)(a)(i) and clause 50(2)(a)(ii) above, can continue as arbitrator in the tribunal even after his retirement.

iii(b) Two selected arbitrators are free to select presiding arbitrator (3rd arbitrator) within thirty (30) days from the date of their appointment. The presiding arbitrator may be selected from approved panel of Railways or approved panel of Indian Council of Arbitration (as per mutual agreement), which will be approved by General Manager/Additional General Manager. General Manager/Additional General Manager shall complete this exercise of appointing the Arbitral Tribunal within 30 days from the receipt of the names of all the three arbitrators.

If one or more of the arbitrators appointed as above refuses to act as arbitrator, withdraws from his office as arbitrator, or vacates his/their office/offices or is/are unable or unwilling to perform his functions as arbitrator for any reason whatsoever or dies or in the opinion of the General Manager/Additional General Manager fails to act without undue delay, the General Manager/Additional General Manager shall appoint new arbitrator/arbitrators to act in his/their place in the same manner in which the earlier arbitrator/arbitrators had been appointed. Such re-constituted Tribunal may, at its discretion, proceed with the reference from the stage at which it was left by the previous arbitrator (s).

(c)(i)

(a) The Arbitral Tribunal shall have power to call for such evidence by way of affidavits or otherwise as the Arbitral Tribunal shall think proper, and it shall be the duty of the parties hereto to do or cause to be done all such things as may be necessary to enable the Arbitral Tribunal to make the award without any delay. The proceedings shall normally be conducted on the basis of documents and written statements.

(b)Before proceeding into the merits of any dispute, the Arbitral Tribunal shall first decide and pass its orders over any plea submitted/objections raised by any party, if any, regarding appointment of Arbitral Tribunal, validity of arbitration agreement, jurisdiction and scope of the Tribunal to deal with the

dispute (s) submitted to arbitration, applicability of time 'limitation' to any dispute, any violation of agreed procedure regarding conduct of the arbitral proceedings or plea for interim measures of protection and record its orders in day to day proceedings. A copy of the proceedings duly signed by all the members of tribunal should be provided to both the parties.

c(ii) Qualification of Railway Empanelled Arbitrator (s):

(a) Retired Railway Officers not below SA Grade level, one year after his date of retirement.

(b) Age of arbitrator at the time of appointment shall be below 70 years.

(c) Persons not involved in any current vigilance/CBl cases or against whom disciplinary or prosecution proceedings are not in process.

(d) Persons who had not been imposed a major penalty or two or more minor penalties or against whom administrative action has not been taken three times or more or

(e)Persons who have not been imposed one minor Penalty and against whom two administrative actions have not been taken as a result of vigilance/CBl action while in service on Railways

c(iii)

(i) An arbitrator may be appointed notwithstanding the total number of arbitration cases in which he has been appointed in the past.

(ii) While appointing arbitrator(s) under GCC Sub-Clause 64.3(a)64.(3)(a)(i), 64.(3)(a)(ii) & 64.(3)(b) above, due care shall be taken that he/they is/are not the one/those who had an opportunity to deal with the matters to which the contract relates or who in the course of his/their duties as Railway servant(s) expressed views on all or any of the matters under dispute or differences. A certification to this effect as per annexure-XVI of GCC shall be taken from Arbitrators also. The proceedings of the Arbitral tribunal or the award made by such Tribunal will, however, not be invalid merely for the reason that one or more arbitrator had, in the course of his service, opportunity to deal with the matters to which the contract relates or who in the course of his/their duties expressed views on all or any of the matters under dispute.

50.3 (i) The arbitral award shall state item wise, the sum and reasons upon which it is based. The analysis and reasons shall be detailed enough so that the award could be inferred there from.

(ii)A party may apply for corrections of any computational errors, any typographical or clerical errors or any other error of similar nature occurring in the award of a Tribunal and interpretation of a specific point of award to Tribunal within 60 days of receipt of the award.

(iii) A party may apply to Tribunal within 60 days of receipt of award to make an additional award as to claims presented in the arbitral proceedings but omitted from the arbitral award.

50.4 Any ruling on award shall be made by a majority of members of Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.

50.5 Where the arbitral award is for the payment of money, no interest shall be payable on whole or any part of the money for any period till the date on which the award is made.

50.6 The cost of arbitration shall be bore by the respective parties. If all the three arbitrators are selected from the Railway Panel, the fee of the arbitrators shall be determined as per the rates fixed/revised by Railway Board from time to time and the fee shall be borne equally by both the parties, provided parties sign an agreement in the format given at Annexure XV of GCC to these conditions after/ while referring these disputes to Arbitration. However, if any of the three arbitrators is selected from the Panel of Indian Council of Arbitration (ICA), the fee of the arbitrators shall be determined as per the rates fixed/revised by the Indian Council of Arbitration from time to time and the fee shall be borne equally by both the parties, provided parties sign an agreement in the format given at Annexure XV of GCC to these conditions after/ while referring these disputes to Arbitration.

50.7 Subject to the provisions of the aforesaid Arbitration and Conciliation Act 1996 and the rules thereunder and relevant para of General Conditions of Contract (GCC) and any statutory modifications thereof shall apply to the appointment of arbitrators and arbitration proceedings under this Clause.

50.8 In case arbitration award is challenged by a party in the Court of Law, 75% of award amount, pending adjudication by Court of Law, shall be made by party to other party. In case payment is to be made by Railway to Contractor, the terms & conditions as incorporated in the Ministry of Railways letter No. 2016/CE(I)/CT/ARB/3(NITI Aayog)/Pt. dated 08th Mar,2017 as amended from time to time, shall be followed. In case Contractor has to pay to the Railway, then 75% of the award amount shall be deducted by the Railway from the Contractor's bills, Performance Guarantee/ Security Deposit or any other dues of Contractor with the Government of India.

51.0 **'Letter of credit' as mode of payment:**

(i) For all the tenders having advertised cost of Rs.10 Lakh or above, the contractor shall have the option to take payment from Railway through a letter of credit (LC) arrangement.

(ii) This option to taking payment through LC arrangement has to be exercised in IREPS (Indian Railway Electronic Procurement System- the e-application on which tenders are called by Railway by the tenderer at the time of bidding itself, and the tenderer shall affirm having read over and agreed to the terms and conditions of the LC option.

(iii) The option so exercise shall be an integral part of the bidder's offer.

(iv) The above option of taking payment through LC arrangement, once exercised by tenderer at the time of bidding, shall be final and no change shall be permitted, thereafter, during execution of contract.

(v) In case tenderer opts for payment through LC, following shall be procedure to deal release of payment through LC:

(a) The LC shall be a sight LC.

(b) The contractor shall select his Advising/Negotiating bank for LC. The incidental cost towards issue of LC and its operation thereof shall be borne by the contractor.

(c) SBI, New Delhi, Main Branch will be the nodal branch for issue of LCs based on online requests received from Railway Accounts Units for tenders opened in financial year 2018-19. SBI branches where the respective Railway Accounts Office has its Account (local SBI branch) will be the issuance/reimbursing branch for LC issued under this arrangement. The Bank shall remain same for this tender till completion of contract. The incidental cost @0.15% per annum of LC value, towards issue of LC and operation thereof shall be borne by the contractor and shall be recovered from his bills.

(d) The LC shall be opened initially for duration of 180 to 365 days in consultation with contractor. The LC shall be extended time to time as per the progress of the contract, on the request of the contractor. The value of LC to be opened initially as well as extended thereafter shall be finalised by the engineer in consultation with the contractor on the basis of expected progress of work.

(e) The LC terms and conditions shall inter-alia indemnify and save harmless the Railway from and against all losses, claims and demands of every nature and description brought or recovered against the Railways by reason of any act or omission of the contractor, his agents or employees, in relation to the Letter of Credit (LC). All sums payable/borne by Railway's on this account shall be considered as reasonable compensation and paid by contractor.

(f) The LC terms and conditions shall inter-alia provide that Railways will issue a Document of Authorization (format enclosed as Annexure 1) after passing the bill for completed work, to enable contractor to claim the authorized amount from their bank.

(g) The acceptable, agreed upon document for payments to be released under the LC shall be the Document of Authorization.

(h) The Document of Authorization shall be issued by Railway Accounts Office against each bill passed by Railways.

(i) On issuance of Document of Authorizations, a copy of Document of authorization shall be posted on IREPS to download by the contractor. A digitally signed copy of Document of Authorizations shall also be sent by Railway Account Office to Railway's bank (Local SBI Branch).

(j) The contractor shall take print out of the Document of Authorisation available on IREPS and present his claim to his bank (advising Bank) for necessary payments as per LC terms and conditions. The claim shall comprise of copy of Document of Authorisation. Bill of Exchange and Bill.

(k) The payment against LC shall be subject to verification from Railway's Bank (Local SBI Branch).

(l) The contractor's bank (advising bank) shall submit the documents to the Railway's Bank (Local SBI Bank).

(m) The railway's bank (issuing bank) shall, after verifying the claim so received w.r.t. the digitally signed Document of Authorisation received from Railway Accounts Office, release the payment to contractor's bank (advising bank) for crediting the same to contractor's account.

(n) Any number of bills can be dealt within one LC, provided the sum total payments to contractor is within the amount for which LC has been opened.

(o) The LC shall be closed after the release of final payment including PVC amount, if any, to the contractor.

(p) The release of performance guarantee or security deposit shall be dealt directly by railway with the contractor i.e., not through LC.

{Authority: Railway Board's letter no. 2018/CE-I/CT/9 dated:04.06.2018}

52.0 **ASSIGNMENT OR SUBLETTING OF CONTRACT:**

(i) **Assignment or Subletting of Contract:** The Contractor shall not assign or sublet the contract or any part thereof or allow any person to become interested therein in any manner whatsoever without the special permission in writing of the Chief Engineer, save as provided below. Any breach of this condition shall entitle the Railway to rescind the contract under Clause 62 of these Conditions and also render the Contractor liable for payment to the Railway in respect of any loss or damage arising or ensuing from such cancellation; provided always that execution of the details of the work by petty Contractor under the direct and personal supervision of the Contractor or his agent shall not be deemed to be sub-letting under this clause.

In case Contractor intends to subcontract part of work, he shall submit a proposal in writing seeking permission of Chief Engineer for the same. While submitting the proposal to railway, Contractor shall ensure the following:

(a) (i) The contractor shall not sub-contract the works comprising more than 40% (forty percent) of the Contract Price and shall carry out Works for at least 60% (Sixty percent) of the total Contract Price directly under its own supervision and through its own personnel. The parties expressly agree that for the purposes of computing the value of sub-contracts under this clause 3.2.1, the Contract Price shall exclude any sub-contract for the procurement of goods and equipment like (rails, sleepers and track fittings, signaling and telecommunication & Power supply equipment). {The Parties agree that all obligations and liabilities under this Agreement for the entire Railway Project shall at all time remain with the Contractor. [The parties agree that works equal to at least 30% (thirty percent) of the Contract price shall be discharged solely by the Lead Members}$

Procurement of materials, hire of equipment or engagement of labour by prime contractor or procuring entity will not mean sub-contracting.

$May be deleted if the Contract is not in Consortium/Joint Venture.

(ii) The subcontractor shall have successfully completed at least one work similar to work proposed for sub-contract in last 5 years, ending date of submission of proposal by Contractor to Railway, costing not less than 35% value of work to be subletted, through a works contract. For fulfillment of above, Work Experience Certificate issued by a Govt. Department/Organization shall be considered. Further, Work Experience Certificate issued by a Public listed company shall be considered provided the company is having average annual turnover of Rs 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, registered at least 5 years back from the date of submission of proposal by Contractor to Railway and work experience certificate issued by a person authorised by the Public Listed Company to issue such certificates.
Note: for subletting of work costing up to Rs 50 lakh no previous work experience shall be asked for by the Railway.

In case contractor submits subcontractor's work experience certificate issued by public listed company, the contractor shall also submit along with work experience certificate, the relevant copy of work order, bill of quantities, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate.

(i) There is no banning of business with the sub-contractor in force over IR.

(b) The Contractor shall provide to the Engineer a copy of the agreement to be entered into by Contractor with subcontractor. No subcontractor shall be permitted without a formal agreement between Contractor and subcontractor. This agreement shall clearly define the scope of work to be carried out by subcontractor and the terms of payment in clear & unambiguous manner.

(c) On receipt of approval from Chief Engineer, Contractor shall enter into a formal agreement legally enforceable in Court of Law with subcontractor and submit a copy of the same to the Engineer.

(d) The Contractor shall intimate to the Engineer not less than 7 days in advance, the intended date of commencement of subcontractor's work.

(e) Once having entered into above arrangement, Contractor shall discontinue such arrangement, if he intends to do so at his own or on the instructions of Railway, with prior intimation to Chief Engineer.

(f) The Contractor shall indemnify railway against any claim of subcontractor.

(g) The Contractor shall release payment to the Sub-contractor(s) promptly and shall endeavor to resolve all issues amicably and speedily with the Sub-contractor(s), so that the execution of work is not affected in any manner whatsoever.

(h) In addition to issuance of work experience certificate to Contractor, the Engineer, when, based on documents, is satisfied that subcontracted work has been carried out by subcontractor, shall issue work experience certificate to the

subcontractor also for the portion of work subcontracted and successfully completed by the sub-contractor.

Note: Work Experience Certificate to the subcontractor shall be issued only when the contractor's work is complete and contractor is entitled for the issuance of Work Experience Certificate. However, in the same contract, when the Chief Engineer, based on documents, is satisfied that the subcontractor has successfully carried out subletted work; without issuance of work experience certificate to subcontractor at this stage, the Chief Engineer can, **only once**, consider the successfully completed subletted work for the fulfilment of eligibility for further subletting of work to the subcontractor in the same contract. When the contractor's work is complete and contractor is entitled for the issuance of work experience certificate, the subcontractor shall be issued one Work Experience Certificate for the total scope of work executed by the subcontractor in the contract

(i) The responsibility of successful completion of work by subcontractor shall lie with Contractor. Subcontracting will in no way relieve the Contractor to execute the work as per terms of the Contract.

(j) Further, in case Engineer is of the view that subcontractor's performance is not satisfactory, he may instruct the Contractor to remove the subcontractor from the work and Contractor has to comply with the above instructions with due promptness. Contractor shall intimate the actual date of discontinuation of subcontract to Engineer. No claim of Contractor whatsoever on this account shall be entertained by the Railway and this shall be deemed as 'excepted matter' (matter not arbitrable).

(k) The permitted subcontracting of work by the Contractor shall not establish any contractual relationship between the sub-contractor and the Railway and shall not relieve the Contractor of any responsibility under the Contract.

(Authority: Rly. Board's letter no. 2020/CE-I/CT/3E/GCC/Policy dt. 08.07.2021)

53.0 **If a bidder has successfully completed a work as sub-contractor and the work experience certificate has been issued for such work to subcontractor by a Govt. Organization or public Listed Company as defined in note for item 10.1 Part–I of GCC, the same shall be considered for the purpose of fulfilment of credentials.**

(Railway Board's letter no.2020/CE-I/CT/3E/GCC/Policy dated 30.12.2021)

54.0 **Offloading of Part(s) of Work:** At the final stage of completion/ commissioning of work, in case the contractor fails to complete the final part(s) of the work and the value of such part(s) of the work is limited to 5% of the original contract value, the Engineer may allow/decide for offloading of such part(s) of works, either after the Contractor's request in writing to do so or after serving a 14 (Fourteen) days suo-moto notice (as per annexure- VIIA of GCC April 2022), if the Engineer is of the opinion that :-

(i) Such Offloading of works (up to 5% of original contract value) would enable successful completion of contract/work,

(ii) Termination/ Part termination of the contract at this stage is not be in the interest of the Railway/work;, and

(iii) The anticipated additional cost for execution of such works through other mode would not be substantial and can be recovered from the pending dues of the contractor; The Contractor shall be informed, in due course, by the Engineer of the mode and cost of execution of such offloaded work through other agencies (as per annexure- VIIB). The extra expenditure so incurred in execution of the offloaded work, shall be recovered from subsequent Bill(s) or any other dues of the Contractor, but not exceeding the value of Performance Guarantee available in the contract. There shall be no other repercussion of such offloading on execution of the balance contract. The Contractor shall have no claim on account of above mentioned offloading of works.

55.0 **Rates for Extra Item(s) of Works:**

1(a) Standard Schedule of Rates (SSOR) Items: Any item of work carried out by the Contractor on the instructions of the Engineer which is not included in the accepted Bill(s) of Quantities but figures in the Standard Schedule of Rates (SSOR), shall be executed at the rates set forth in the "Standard Schedule of Rates (SSOR)" modified by the tender percentage as accepted in the contract for that chapter of Standard Schedule of Rates (SSOR).

For item(s) not covered in this sub clause, the rate shall be decided as agreed upon between the Engineer and the Contractor before the execution of such items of work as per sub clause (b).

(b) Other Items: For any item of work to be carried out by the Contractor but not included in the accepted Bill(s) of Quantities and also not covered under sub clause (a) above, the Contractor shall be bound to notify the Engineer at least seven days before the necessity arises for the execution of such items of works that the accepted Bill(s) of Quantities does not include rate or rates for such extra work involved. The rates payable for such items shall be decided at the meeting to be held between the Engineer and Contractor, in as short a period as possible after the need for the special item has come to the notice. In case the Contractor fails to attend the meeting after being notified to do so or in the event of no settlement being arrived at, the Railway shall be entitled to execute the extra works by other means and the Contractor shall have no claim for loss or damage that may result from such procedure.

The assessment of rates for extra item(s) shall be arrived at based on the prevailing market rates of labour, machinery & materials and by taking guidance from the following documents in order of priority:

i. Analysis of Rates for "Unified Standard Schedule of Rates of Indian Railways (USSOR-21)"

ii. Analysis of Rates for "Delhi Schedule of Rates issued by CPWD (DSR-21)"

iii. Market Analysis

(2) Provided that if the Contractor commences work or incurs any expenditure in regard there to before the rates as determined and agreed upon as lastly here unto fore-mentioned, then and in such a case the Contractor shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of determination of the rates as aforesaid 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 Railway.

56.0 **All Paras/Clauses of GCC April 2022 corrected up to date, will be applicable in case of any dispute**

Annexure-1 to Chapter-5

LCDA No. (18 DIGIT IPAS GENERATED NO.)
DOCUMENT OF AUTHORIZATION
Reference (i) Works Contract/Supply Contract No. _____ Dated _____
(ii) Inland Letter of Credit No. _____ Dated _____

This document is issued against contract No. ------ (FROM IREPS) ---------- dated ---------- for supply/work of ..... DESCRIPTION OF GOODS/ WORK FROM IREPS) ----------

The beneficiary of the aforementioned Letter of Credit M/s ..... (NAME AND VENDOR CODE) .... (Vendor Code ..... as per IRPES .....) is entitled to received payment aggregating INR .....$$$ ..... (FROM ABSTRACT OF BILL PASSED) out of a total LC amount of INR .....(FROM MASTER TABLE OF LC OPENED) ..... against the first/second" commercial Invoice No. (FROM IPAS) _____ dated ---------- FROM IPAS _____ for INR (FROM IPAS) ---------- raised against the above contract from State Bank of India ---------- (branch- FROM MASTER TABLE)----- on the strength of this Certificate.

The details of payments already made to the beneficiary under this Letter of Credit are as follows:-

S. No.	Invoice No.	Invoice date	Invoice Amount (INR)	LCDA No.	LCDA date	Amount paid (INR)
Total Paid						

THIS PAYMENT:_____$$$ _____

LC BALANCE AFTER THIS PAYMENT: _____

(Signature of authorised Railway authority)

Name

Designation

Official Seal

****

Annexure-2 to Chapter-5

SPECIMEN FORMAT OF BANK GUARANTEE BOND

1. In consideration of the President of India (hereinafter called "the Government") having agreed to exempt ..... (Hereinafter called "then said Contractor(s)") from the demand, under the terms and conditions of as Agreement dated ..... made between ..... and ..... for ..... (Herein after called "the said Letter of Acceptance/Agreement"), of security deposit/performance guarantee/mobilization advance guarantee for the due fulfilment by the said Contractor(s) of the terms and conditions contained in the said Letter of Acceptance/Agreement, on production of Bank Guarantee for Rs..... (Rupees ..... We ..... (Hereinafter referred to as "The Bank"). (Indicate the name of the Bank) at the request of ..... (Contractor(s)) do hereby undertake to pay to the Government an amount not exceeding Rs. ..... against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach of the said Contractor(s) of any of the terms or conditions contained in the said Letter of Acceptance/Agreement.

2. We ..... (indicate the name of the bank) do hereby undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of breach by the said (contractor(s) of any of the terms or conditions contain in the said Letter of Acceptance/Agreement or by reason of the (contractor(s) failure to perform the said Letter of Acceptance/Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by 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 proceedings pending before any court of 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)/supplier(s) shall have no claim 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 Letter of Acceptance/Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Letter of Acceptance/Agreement have been fully paid and its claim satisfied or discharged or till FA&CAO/Con/ECR office/Department Ministry of Railway certifies that the terms and conditions of the said Letter of Acceptance/Agreement have been fully and properly carried out by the said contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the ..... we shall be 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 Letter of Acceptance/Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forebear or enforce any of the terms and conditions relating to the said Letter of Acceptance/Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of the Government or any indulgence by the Government to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6 The guarantee will not be discharged due to the change in the Constitution of the bank of the contractor(s)/supplier(s).

7 We ..... (Indicate the name of the bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing . Date the ..... day of ... 22_ _ for .....

Note: "The tenderer(s) are directed for submission of BG strictly as per proforma without any change in wording, style and contents. Any delay in execution of agreement and repercussion there of arising out of variation from the prescribed proforma will be on account of the tenders/contractors"

(Indicate the name of Bank)

Annexure-3 to Chapter-5

PROFORMA OF IDEMNITY BOND

Indemnity for Safe Custody of Reinforcement steel/Structural Steel as per Special Conditions of Contract Agreement No. dated: for the work " "

1. We (Name of Contractor) ....here by undertake that we shall hold at our Workshop at ---------- for and behalf of the President of India and in trust for him the stores/articles(mentioned in annexure, details to be given for quantity for each section and grade) which may be and/or which has been made over to us, in connection with "----------" against the contract agreement No..... Dated.....
2. We shall be and remain absolutely responsible for the safe custody and protection of the said stores and articles against all risks, whatsoever, till those and assembled in the bridge to be fabricated against the above mentioned contract and duly delivered to the President of India or to his representative as he may direct and as such do hereby indemnify the president of India against any loss and/or damage to the said stores and articles while in our possession/custody. The said stores and articles shall however be at all times, open to the inspection by officers who may be authored on that behalf by ministry of Railways or its nominee.
3. Should however, at any time any loss or damage to as aforesaid, occurs or a refund become otherwise due to the President of India, he or his representative shall be entitled to recover from us compensation for, and in respect of such loss or damage, if any, or the amount to be so refunded without prejudice to any other remedies which may be otherwise available to the said president of India by way of deduction from any sum due to/or any sum which at any time hereafter may become due to us under this or any other contract.

   In the event of any loss or damage as aforesaid, the assessment of such loss or damage and the assessment of the compensation therefore would be made by the President of India or his authorized nominee and the said assessment would be final and binding upon us.

For.....

DECLARATION FORM

For receiving materials from the Railways by the Firm.

"I/We hereby solemnly declare that the .....(Material) obtained is required for the purpose of Manufacturing .....(finished product) against Contract Agreement No..... dated.....The .....(material) will not be utilized for any other purposes or otherwise disposed of without the prior approval of the president of India/Railways or his nominee"

Note: - This Performa is only for guidance and may be changed/amended at any stage at the discretion of Engineer. This is to be submitted on stamp paper of appropriate value at the Contractor's cost.

Annexure-4 to Chapter-5

Reference Para 64.3 & 64.6 of GCC 2022

Agreement towards Waiver under Section 12(5) and Section 31A (5) of Arbitration and Conciliation (Amendment) Act

I/we..... (Name of agency/Contractor) with reference to agreement no..... raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims:
Brief of claim:

(i) Claim 1- Detailed at Annexure-

(ii) Claim 2 –

(iii) Claim 3 –

I/we..... (post of Engineer) with reference to agreement no..... hereby raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims:

I/we.....do/do not agree to waive off applicability of section 12(5) of Arbitration and Conciliation (Amendment) Act.

Signature of Claimant_____ Signature of Respondent _____

Agreement under Section 31(5)

I/we..... (Name of claimant) with reference to agreement no..... hereby waive off the applicability of sub section 31-A (2) to 31-A (4) of the Arbitration and Conciliation (Amendment Act. We further agree that the cost of arbitration will be shared by the parties as per Clause 64(6) of GCC.

Signature of Claimant_____Signature of Respondent_____

*Strike out whichever not applicable.

PROFORMA OF INDEMNITY BOND

(To be typed on non-judicial Stamp Paper worth Rs. 300/- and should be attested by Notary Public or a First Class Magistrate)

This Indemnity bond executed on this _____ day of _____ by (name of Contractor and address) _____, herein referred as the Indemnifier (which expressions where the context so admits or requires shall be deemed also to include their representatives and assignees) of the one part in favour of _____ (hereinafter referred as the Railway) of the other part.

Whereas, the tenderer (name of contractor) undertake to abide by all the provisions contained in the following laws:

1. Minimum Wages Act 1948
2. Apprentices Act 1961
3. Payment and Wages Act 1936
4. Contract Labour [Regulation and Abolition] Act 1970
5. Contract Labour [Regulation and Abolition] Central Rules 1971
6. Provisions of Employees Provident Fund and Miscellaneous Provisions Act, 1952
7. Workmen's Compensation Act
8. Mines Act' 1952
9. The Building and other Construction Workers Act' 1996
10. The Building and Other Construction Workers' Welfare Cess Act' 1996

Whereas, the tenderer (name of contractor) is agreed to indemnify the Railway in case of failure to adhere to any of provisions of the aforesaid mentioned laws which are applicable to the Contract.

That tenderer (name of contractor) is also hereby agreed to indemnify the Railway for such loss sustained on account of non-adherence to above laws by way of amount equivalent to the loss suffered by the Railway.

That, tenderer (name of contractor) is hereby agreed to allow the Railway to deduct the equivalent amount from the running bills, SD, etc or as deem fit by Railway.

Now, this Indenture witnessed that the tenderer agrees and undertakes that he/they shall indemnify and keep indemnified the Railway from and against all claims, demands, actions, proceedings, losses, damages, recoveries, judgments, costs, charges, expenses and penalties in connection with the aforesaid Acts which may be made or brought or commenced against the Railway or which the Railway may or may have to bear, pay or suffer, directly or indirectly.

In witness whereof the Indemnifier has put his signatures on the day and year first above written.

WITNESSES: [name and address)   INDEMNIFIER 1. 2.

Place:
Date:-

ANNEXURE - 6 to Chapter-5

_____RAILWAY

TENDER FORM (First Sheet)

Tender No. _____

Name of Work_____

To

The President of India

Acting through the_____Railway

I/We..... have read the various conditions to tender attached hereto and agree to abide by the said conditions. I/We also agree to keep this offer open for acceptance for a period of.....days from the date fixed for closing of the tender and in default thereof, I/We will beliable for forfeiture of my/our "Bid Security". I/We offer to do the work for Railway, at the rates quoted in the attached bill(s) of quantities and hereby bind myself/ourselves to complete the work in all respects within.....months from the date of issue of letter of acceptance of the tender.

2. I/We also hereby agree to abide by the Indian Railways Standard General Conditions of Contract, with all correction slips up-to-date and to carry out the work according to the Special Conditions of Contract and Specifications of materials and works as laid down by Railway in the annexed Special Conditions/Specifications, Standard Schedule of Rates (SSOR) with all correction slips up-to-date for the present contract.

3. A Bid Security of₹_---------has already been deposited online/ submitted as Bank Guarantee bond. Full value of the Bid Security shall stand forfeited without prejudice to any other right or remedies in case my/our Tender is accepted and if:

(a)I/We do not submit the Performance Guarantee within the time specified in the Tender document;

(b)I/We do not execute the contract documents within seven days after receipt of notice issued by the Railway that such documents are ready; and

(c)I/We do not commence the work within fifteen days after receipt of orders to that effect.

4. (a) I/We am/are a Startup firm registered by ..... Department of Industrial Policy and Promotion (DIPP) and my registration number is ..... Valid up to..... (Copy enclosed) and hence exempted from submission of Bid Security.

5. We are a Labour Cooperative Society and our Registration No.is with.....and hence required to deposit only 50% of Bid Security.

6. 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.

Signature of Tenderer(s)

_____ Date _____

Address of the Tenderer(s)

ANNEXURE - 7 to Chapter-5

Reference – GCC Para 6.1A of ITT

FORMAT FOR CERTIFICATE TO BE SUBMITTED / UPLOADED BY TENDERER ALONGWITH THE TENDER DOCUMENTS

I.....(*Name and designation*)**appointed as the attorney/authorized/ signatory of the tenderer

M/s_____(hereinafter called the tenderer) for the purpose of the Tender documents for the work of__as per the tender No.____ of(*Railway*)**, do hereby solemnly affirm and state on the behalf of the tenderer including its constituents asunder:

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website www.ireps.gov.in. I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. **I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.**
6. **I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.**
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the **certificate** submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security may also lead to any other action provided in the contract including banning of business for a period of up to **two** year.

Further, I/we (*insert name of the tenderer*) **_____and all my/our constituents understand that my/our offer shall be summarily rejected.

9. I/we also understand that if the contents of the certificate submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee and may also lead to any other action provided in the contract including banning of business for a period of up to **two** year.

10. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

SEAL AND SIGNATURE OF THE TENDERER

Place:

Dated:

**The contents in Italics are only for guidance purpose. Details as appropriate are to be filled in suitably by tenderer.

Note

"On IREPS Module, a facility has already been created for online submission of Annexure-V. Therefore, the provision of downloading of Annexure-V of GCC & uploading of physically signed Annexure-V by the tenderer had been discontinued on IREPS." (Reference Railway board Letter no. 2022/CE-I/CT/GCC Correspondence dt : 14/05/2024.)

ANNEXURE – 7A to Chapter-5

Reference –GCC Para 6.1 of ITT

(***This certificate is to be given by attorney/authorized signatory/each member of Partnership firm/Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc***.)

I/We……(Name), attorney/authorized signatory of the ……..….. (constituent firm/constituent partner) and member/partner of the ……(tendering firm) hereby solemnly affirm and state as under:

1. I/we certify that ……..….. (constituent firm/constituent partner) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.

2. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed),

SEAL AND SIGNATURE
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:

Dated:

CHAPTER - 6

पूर्व मध्य रेल
निर्माण संगठन

SPECIAL CONDITION FOR MEASUREMENT OF WORK BY CONTRACTOR IN WORKs CONTRACT

I) **Measurement of work by contractor in works contractor;** Applicable for works tender having value of **Rs 05 (Five) crore** or more.

1.1. Measurement of work by contractor is allowed shall contain special condition to this effect, duly incorporating the provision of para-E.1316A;

1.2. Measurement recorded by the contractor shall be test checked by Railway within 45 days of submission of measurements;

1.3. While processing 75% provisional payment bill, concerned executives shall ensure that supply items given by contractor are commensurate with requirement for execution of works.

II) **Addendum & Correction slip (ACS) no-50 of Indian Railways code for Engineering Department [ParaE1316A] for instructions of measurement and recording of "executed works" by the contractor in Railway Construction work."**

Para1316A (Applicable for contracts where in the measurement of work by contractor is permitted): Para 1316 of Engineering Code shall not be applicable for these contractors. For such contractors, contractor shall be responsible for carrying out measurements of work executed and recording of measurements for the release of on account/final payment. In such cases, the detailed procedure for recording of measurements, provisional payments, test check and final payment shall be as follows:

Contractor's Measurement Book:

1. Railway shall arrange contractor's measurement book (CMB), each having sheet No. 1A to 4A (From E 1313), followed by 100 machine number pages (From 1313, sheet No. 5A). On the top of each sheet of CMB, there shall be provision for recording the name of the work, agreement number, name of contractor and CMB number.

2. CMBs shall be printed in such a way so as to keep a clear margin of 50 mm on the left side of page. Further, the left side shall have pinhole tear line at a distance of 15 mm from edge for ease of taking out sheets from these books. The binding shall be within 15 mm of the margin available between edge and pinhole tear line. This shall ensure availability of minimum 35 mm clear margin to re-bind measurement books later on.

Movement and upkeep of Contractor's Measurement Book:

3. Dy. Chief Engineer/Con/I/DNR in charge of contract (Dy. CE/C/1/DNR) shall hand over required No. of CMBs to Assistant/Executive Engineer in-charge of contract (AEN/XEN) after taking receipt of the same on sheet No. 2A (From E.1313) for further issuance to contractor time to time as per progress of work.

4. CMB shall be registered with unique No. in the Register of Measurement Books (From E.1314) maintained in the office of Dy. CE/C/1/DNR. Separate accountable of CMBs for each agreement shall be maintained in the office of Dy. CE/C/1/DNR and AEN/XEN.
5. In case of change of 'contractor's authorized engineer', fresh approval shall be taken form Dy. CE/C/1/DNR before recording of measurement.
6. While issuing the CMB to contractor, AEN/XEN shall take out sheet No. 2A to 4A from the CMB, take receipt of CMB form contractor on sheet No 3A (From E 1313), and keep the same in safe custody.
7. Similar system as for CMB, shall be followed for issuing Field Book/ Level Book (E.1317/A) to contractor for recording of levels in the field book/ level book.

Measurement

8. The contractor's authorized engineer shall record the measurements in CMB neatly in his own handwriting, without any use of eraser/overwriting, without use of any typing fluid or any such kept blank in between the measurements.
9. The Contractor shall communicate the date of measurement to AEN/XEN in sufficient advance to witness any measurement. Witnessing of measurement by railways in not compulsory except for initial levels in case of earthwork and hidden measurements. Initial levels of earthwork and hidden measurements are to be recorded in the presence of railways officials and test checked as prescribed.
10. In an account contract certificate, measurement shall be recorded for the items and quantities to be paid in the concerned-on account contract certificate.
11. However, in every 4th on account contract certificate and final contract certificate, the recording of measurement for works executed shall include all the items and their quantity included in previous on account contract certificates, irrespective of whether to be paid or not in the current On Account Contract Certificate/ Final Contract Certificate.
12. No payment shall be processed on Lump-sum measurement taken by contractor's authorized engineer except for earthwork. For earthwork, every 4th bill shall be based on actual levels taken and detailed calculations carried out for the work done.
13. The contractor shall take out carefully form CMB the used pages of CMB with one extra blank page for processing the bill; staple them for submission to AEN/XEN along with bill, duly signing the measurements. The contractor shall keep a photocopy of the measurement with him for future reference.
14. At the time of submission of final bill, the contractor shall submit all the remaining CMBs (unused as well as partially used) with him along with bill to AEN/XEN.
15. The contractor shall submit required copies of invoice and on account certificate/final contract certificate (similar to from E.1337 and from E.1338) to the AEN/XEN duly marking them – original or duplicate copy. Original shall be

used for release of payment whereas duplicate copies shall be used for record purpose in different offices.

16. In case contract required provisional payment of on-account bill, the contractor shall submit his invoice and provisional on account contract certificate for 75% of amount of work done (before deduction of taxes). The contractor shall write 'For Provisional Payment' on top of such on-account contract certificate.

17. AEN/XEN while issuing receipt of stapled sheets of CMB to contractor shall clearly record the same in sheet 4 (E.1314) of concerned CMB, keep in the office of AEN/XEN.

Release of Provisional Payment

18. Senior Section Engineer / 'Junior Engineer with 5 years' experience' (SSE/JE) and AEN/XEN shall sign & record a certificate on the original provisional 'on account contract certificate' as under:

    "Certificate that the payment being made is less than the amount due for the quantities of works executed by the contractor".

    In case of payment of earthwork items in any contract, calculation of quantity of such items along with field book / level book must be enclosed. This shall be cross checked, as considered appropriate by SSE/JE & AEN/XEN, to ensure that no excess payment is being made.

    At this stage no test check of measurements by railway is required.

19. AEN/XEN shall keep a copy of contractor's invoice & Provisional on account contract certificate in his office, and submit original invoice & original provisional on account contract certificate along with required number of duplicate copies, and used of CMB to the Dy. CE/C/1/DNR unit for passing the bill and release of payment.

20. The Provisional on account contract certificate shall be passed by Dy. CE/C/1/DNR and payment shall be released by associate finance based on above certification of SSE/JE and AEN/XEN. After release of payment, blank sheet of CMB (if any) shall be crossed by Dy. CE/C/1/DNR before sending the measurement sheets back to AEN/XEN for carrying out required test checks. At this stage measurements shall not be crossed.

21. No provisional payment shall be allowed in final contract certificate. Further, once provisional payment has been released in any on-account contract certificate, the next on account contract certificate can be raised by contractor only when accounts of previous on account certificate (Provisional as well as remaining payment) has been finalized.

Test Check

22. Necessary test check shall be carried out by the SSE/JE and AEN/XEN for the works done before full payment of on-account contract certificate/ final contract certificate. SSE/JE and AEN/XEN shall communicate the date of test checks to contractor in advance. The contractor can accompany during test check. The contractor shall provide support staff and all required tools & plants to facilitate test check by railway officials.

23. The stipulated test checks for AEN/XEN and SSE/JE Level is tabulated as under:

S. No.	Description of works	Test check in terms of % of value by	
		SSE/JE	AEN/XEN
(a)	Measurement of Ballast, pitching stone Earth work and hidden items	100%	100%
(b)	Measurement of all other items	100%	20%
(c)	Initial and final levels along center line for earthwork in embankment and cutting	100%	100%
(d)	Intermittent levels along center line for earth work in embankment and cutting	100%	20%
(e)	Initial, intermittent and final levels except center line for each work in embankment and cutting	100%	20%

Note: The check regarding levels of earthwork invariably shall be carried out in cross sections having heavy cross slopes.

24. Contractor's recorded measurement sheets shall be checked for any corrections/over writing during test check. All the corrections/over writing shall be initialed by SSE/JE.

25. The discrepancy noted (if any) during test check of recorded measurement shall be communicated by AEN/XEN to the contractor.

26. In case of discrepancy noticed during test check, the contractor shall submit original and required copies of fresh invoice of amount corrected for discrepancy, and in case provisional payment has been released earlier, the required copies of fresh invoice of remaining amount corrected for discrepancy (if any), along with on account/final contract certificate to AEN/XEN.

Full Payment of On Account Contract Certificate/Final Contract Certificate

27. AEN/XEN shall submit original copy of invoice and on account contract certificate of remaining amount/ Final Contract Certificate, along with required number of duplicate copies and used sheets of CMB (all used/blank CMBs in case of final contract certificate), duly signed by SSE/JE and AEN/XEN to the Dy. CE/C/1/DNR for passing the bill and release of payment.

28. Once the payment is released, Dy. CE/C/1/DNR shall return back the used sheets of CMB to AEN/XEN for safe custody, duly crossing of measurements by finance officer.

29. Once all used sheets of a particular CMB is received back by AEN/XEN form Dy. CE/C/1/DNR, the AEN/XEN shall re-bind all 100 pages of CMB along with sheet No. 1A to 4A for submission of CMB to Dy. CE/C/1/DNR office. Dy. CE/C/1/DNR office shall record the receipt of same in sheet No. 2A of CMB and Register of Measurement Books (From E.1314).

30. The final contract certificate shall be passed by Dy. CE/C/1/DNR only after receipt of all CMBs (used/blank) form AEN/XEN.

31. The provision of this para 1316A shall be applicable to all the department of Indiana railways and to be executed through equivalent authorities of respective departments.

CHAPTER-6

Addl. Special Conditions of Contract i.e. Technical Conditions (As applicable)

East Central Railway
Office of the Chief Administrative Officer [Con]
Mahendrughat, Patna - 800 004
SPECIAL CONDITION & SPECIFICATION FOR EARTHWORK.

1. **GENERAL**

1.1 Earthwork shall be done generally in accordance with provision of General Conditions of Contract and East Central Railway Standard Specifications for Works and materials-2008.

1.2 The comprehensive guideline and specification for Earthwork in Railway Projects" Guide line (GE:0004) issued by Geo-technical directorate of RDSO in September 2020 known here, under, as "RDSO guidelines" shall form the basis of principles for conducting all testing and execution of work of embankments. A copy of this book can be purchased from the office of Chief admin. Officer(Con), East Central Railway, Patna at a price mentioned therein.

1.3 Standard sections for Earthwork in formation, cutting, blanketing for single line, double line conventional doubling are given in the Indian Railways Permanent Way Manual 2004 and Indian Railways Code for Engineering Dept. 1993, both with updated correction slips, which are Government of India's priced publications. However, a set of such standard sections can be purchased from the office of Chief Admin. Officer(Con), East Central Railway, Patna at a price of Rs 100/-.These sections are for guidance of contractor to assess the type of work involved but the actual dimensions/side slopes etc. may vary to some extent depending on local conditions.

1.4 Where these conditions and specifications are in conflict with or repugnant to the East Central Railway Standard Specifications and/or other books mentioned as Book of Reference in this tender document, the clause of these Special Conditions and Specifications shall prevail.

2. **EARTHWORK.**

2.1 Before the work is started, the whole area between the toes of the bank or top of cutting shall be properly cleared by the contractor of all Trees, Roots, Heavy grass and all obstructions. No extra payment will be made for such work. All trees of girth (parameter) more than 12 inch at 1 meter above the bottom shall be the property of the Railway and the Contractor shall, after uprooting, deposit the same with Railway. Before cutting trees, necessary permission required from the forest department or any other appropriate authority, shall be taken, by the contractor on the basis of Railway's recommendatory letter.

2.2 (a) Where an embankment is being extended in width, the slope of the existing embankment shall be benched as per specification of GCC and the cost for the same shall be included in the through rate and shall not be payable separately.

(b) Before commencing the work, Labeling as specified in GCC & East Central Railway Standard Specifications for Works and materials-2008 shall be done.

3. **PAYMENT.**

3.1 Payment shall be made on finished cross sectional quantities, cross sectional areas at various points shall be worked out and the arithmetic mean of the areas, at any two such continuous points multiplied by the horizontal distance between these two points measured along the centerline of the alignment shall be taken as the quantity of earthwork between the two points on which the payment shall be made. The contractor shall have no claim for the quantities over and above the payments on account of subsidence, base settlement, wastage or guttering due to rain, floods, wind, wave wash etc. All bridges and other gaps shall be deducted in full from the quantity of the earthwork.

3.2 SETTLEMENT ALLOWANCE: Where the embankment is compacted to specified dry density mentioned hereunder, no allowance for settlement of the bank shall be made, where the bank has

3.3 been formed by dumping earth, light tamping, and/or passing a monsoon over it, necessary allowances for settlement as specified in the GCC shall be made.

3.4 All payments shall be made in accordance with items given in the "Schedule of Items" only. Any arrangements/works required to be done to achieve the work defined in various Items of the "Schedule of Items" shall be done at contractor's cost without any extra payment and the Contractor should include such expenses in the rates quoted against the said items.

3.5 While making embankment, earth shall not be dumped in any standing water at the location where embankment has to be constructed. If there is any standing water, the same shall be drained or pumped out completely before any earth is dumped in this area. In case of draining out or pumping out water, no extra payment will be made to the contractors and quoted rates for earthwork shall cover all such charges.

3.6 There shall be only two classifications of soil, e.g. (a) All types of soil except those requiring blasting for excavation (b) those requiring blasting. All the payments for excavations in cuttings shall be made as per the Schedule of Items only on the basis of these two classifications.

3.7 LEAD / LIFT etc.: No separate lift / crossing of line or similar item shall be payable separately otherwise than provided in the Schedule of items. Lead shall be payable as provided in the Schedule of Items.

3.8 Lead for the purpose of payment will be measured on a longitudinal section of the alignment from center of gravity of the Cut to the center of the gravity of the fill, along a straight line. Measurements of distance of lead shall not be done at site even if the contractor does not or is unable to follow this straight line. The assessment of lead is a drawing table exercise. The L-section shall be divided into segments, each of appropriate and suitable length, and volume of earthwork in each segment calculated.

Segments of cut and fill will then be matched and lead measured from L-section from center of gravity of cut to center of gravity of fill, in such a way that the total amount payable on the lead is the least. For this purpose, spoils are not to be lead across obstruction caused by waterways with major bridges unless a road bridge exists by the side of the alignment. Waterway with minor bridges shall be ignored because contractor is expected to build temporary culverts across them on its own cost for leading spoils. It is desirable that the contractor before commencing work draws the lead chart in L-section based on the above guidelines and tentatively decides lead and fills area. The contractor shall try to stick to this lead during execution of the work. The contractor in his rate, if any, shall cater for variations.

3.9 The spoils from cuttings shall normally be utilized for earthwork in embankment. Where the cutting spoil has been used for making embankment, payments shall not be made for both cuttings as well as embankments. Only one payment, i.e., for cutting shall be allowed. However, lead over free lead (100 M) will be paid separately as provided in the schedule of the work. Surplus, unsuitable spoils shall be dumped in neat stacks on Railway land or disposed off as directed by Engineer at site for which no extra payment will be made.

3.10 Stone excavated from cuttings, which may be considered useful for use as building stone, for pitching or for breaking into ballast or chips shall be stacked separately by the contractor as directed by the Engineer at site. This stone will be property of the Railway and may be issued as Railway materials to the contractors as pitching etc. in accordance with relevant Item of L&M Schedule.

3.11 If any service roads, culverts, bridges etc. are to be built, the contractor shall build the same at his own cost., including ramps for transporting earth to make embankment, all the service roads are to be maintained by the contractor at his own cost. No separate payment for such works shall be made.

3.12 The contractor shall break all clods / lumps of soil and fill up all hollows in the earthwork in embankment by light tamping / consolidation which may be achieved by a few passes of plate vibrator or a suitable type of roller. The rates in items in earthwork in embankment shall include this.

3.13 The contractor may be asked to use Geo-Synthetics / Geo textiles in the embankment if it is found that the use of Geo-synthetics reduces the overall cost considerably. In such an event, special rates and conditions shall be separately negotiated with the contractor, but the contractor shall have no claim for reduction in quantities of other items. At the time of such negotiations, the Railway shall obtain a "No Claim "certificate to this effect. The Railway also reserves the right to get the installations of the Geo-synthetics / Geo textiles etc. executed through other agencies

3.14 The borrow pits shall be kept sufficiently away from the toe of the embankment to prevent base failures. The contractor may carry out a stability analysis to decide the distance. In case such analysis is not done, this distance of borrow pits from the toe of the bank shall be minimum of 3.0 meter + height of the bank.

3.15 The work of bolder pitching, turfing etc. Shall be carried out under ECR/USSOR 2012 unless other wise specified.

3.16 Turfing shall be done during monsoon period only. The contractor shall take care of the turfing including watering of the turfing, in case of failure of monsoon, till the sods/seeds take firm roots. The sods/seeds shall be of approved quality.

4. **SOIL EXPLORATION/ TESTING**

4.1 The contractor shall arrange for testing of the soil at his own cost without any extra payment for every 500 m to ascertain the suitability of the soil for formation of embankment, to obtain its heavy proctor density characteristic and to obtain strength parameters such as cohesion (C) and angle of internal friction 'ϕ' etc of the soil in the

compacted / un-compacted conditions in the embankment in order to design slopes. The testing of the soil to be done in accordance with the following RDSO guidelines

4.2 SOIL EXPLORATION TO BE DONE AS UNDER.

(A) Cutting (> 6.0 m depth) .

(1) Bore logs: (Depth = Depth of cutting + 3.0 minimum)

(2) Collection of undisturbed soil samples: 100 mm diameter at every 1.5m interval or change of strata.

(3) Laboratory tests of soil sample.

(a) Soil classification as per IS standard.

(b) Grain size analysis (clay, slit, sand and gravel %) including hydrometer analysis.

(c) Natural Moister Contents (NMC)

(d) Natural Dry Density (NDD).

(e) Liquid limit, Plastic limit.

(f) Effective Shear Parameters. C = (effective cohesion), φ = (effective angle of shear resistance). Tests to be done in fully saturated condition:

(g) Tri-axial shear apparatus (CU) test: - Consolidated un-drained tests with pore pressure measurements

Or

Direct shear test in consolidated drained condition (CD) test.

(B) Embankment (> 6.0 m height)- Subsoil investigation.

(1) Bore log (Depth =height of embankment)

(2) Collection of undisturbed soil samples 100mm diameter at every 1.5m intervals or change of strata.

(3) Standard penetration test (N-Value) at 1.5m intervals in a bore hole.

(4) Laboratory tests of soil samples.

(a) Soil classification as per IS standard.

(b) Grain size analysis (clay, slit, sand and gravel %) including hydrometer analysis.

(c) Natural Moister Contents (NMC)

(d) Natural dry density (NDD).

(e) Liquid limit, Plastic limit.

(f) Effective shear parameters. C = (effective cohesion), φ = (effective angle of shear resistance). Tests to be done in full-saturated condition.

(g) Tri-axial shear apparatus (CU) test: - Consolidated un-drained tests with pore pressure measurements Or

Direct shear test in consolidated drained condition (CD) test.

(C) Embankment (in swampy or in water logged areas even for height of embankment is less than 6.0m)

(1) Soil exploration and testing as in the case of embankment of height more than 6.0m to ascertain the depth of soft strata.

(2) Laboratory test of soil samples.

(a) Soil classification as per IS standard.

(b) Grain size analysis (clay, slit, sand and gravel %).

(c) Natural Moister Contents (NMC)

(d) Natural Dry Density (NDD)

(e) Liquid limit, Plastic limit.

(f) Effective shear parameters. C = (effective cohesion), φ = (effective angle of shear resistance). Tests to be done in full-saturated condition.

(g) Tri-axial shear apparatus (CU) test: - Consolidated un-drained tests with pore pressure measurements

Or

Direct shear test in consolidated drained condition (CD) test.

(h) Consolidation test.

(A) Fill Material: soil classifications and shear parameters are required to design the safe side slope.

(a) Effective shear strength parameters (C& φ) in remolded condition at 90% of max. dry density as determined in accordance to IS: 2720-Pt.VIII (Heavy compaction). Tests are to be done in fully saturated condition.

(b) Soil classification as per IS standard.

(c) Grain size analysis (clay, slit, sand and gravel %) including hydrometer analysis.

(d) Liquid limit, Plastic limit.

(e) Compaction test to determine
- Maximum Dry Density
- Optimum Moisture Content (OMC) as per IS: 2720-Pt.VIII (Heavy compaction.).

(E) Slope stability: Based on soil survey and explorations locations showing signs of instability, creep, slips etc. should be analyzed by stability analysis with effective shear strength parameter ensuring a minimum factor of safety of 1.4. Bank or cutting with height / depth of 6.0m or more must be checked for stability of slopes.

4.3 The contractor shall also make arrangements for quality control of compaction of the embankment by establishing and manning adequate Field Laboratory (ies). The in-situ moisture content of compacted soil shall be determined according to the any one of the procedures given in IS: 2720 (Pt. II)-1973. The Field dry density should be determined by any one of the methods given in IS: 2720 (Pt. XXVIII)-1974 or IS: 2720(Pt. XXIX) 1975 or IS: 2720 (Pt. XXXIV)-1972. The tests shall be performed after removing top 5cm layer of earth (IS: 10379-1982).

4.4 The contractor shall establish Field Laboratory (ies) to cover all the above investigation except triaxial and other test ascertaining strength characteristics, for which he may appoint any other centralized laboratory where he will get the tests done at his own cost.

4.5 The contractor shall submit samples of earth which he proposes to use for formation of the embankment along with relevant tests results as prescribed above to the Engineer before commencing earthwork and shall get the same approved by Dy.CE / in charge for use.

While approval of the sample for use, the consideration of particles size distribution shall, not be only consideration. The safe slope of the embankment as can be obtained from that sample of earth when compacted according to these specifications; total quantities required and over all economy shall also be considered while considering the suitability of the earth for embankment.

5. **DETERMINATION OF MAXIMUM DRY DENSITY**:

5.1 For clayey soils: the maximum dry density shall be determined by heavy proctor compaction test in accordance with IS: 2720(Pt. VIII)-1983. The dry density and moisture content relationship shall be obtained for a number of samples and shall cover moisture contents ranging from 2% less than the optimum moisture contents to plastic limit.

5.2 Sandy and silty soil: With moderate cohesion:

(a) Where the soil is amenable to compaction and satisfactory results are contained when compacted by heavy proctor test as per IS: 2720(Pt. VIII) 1983. The soil shall be treated like clayey soil in the manner mentioned above

(b) Where the soil is not amenable to test by heavy proctor test, field trial as per IS:10379 – 1982 shall be conducted to achieve moisture content, density and rolling relationship. Such moisture content should cover a range of high moisture content so that such relationship is available in quality control of compaction at higher moisture contents in accordance with Para below:

5.3 Gravelly soil : For gravel fraction up to 30% moisture content density relationship shall be obtained by heavy proctor test IS:2720 (Pt. VIII)-1974 on 40mm IS sieve (IS 10379 –1982)

5.4 Weathered soils: In certain weathered soils behavior to compaction in field differ from laboratory compaction characteristics and the maximum compaction achievable for such soil in the field shall be determined in accordance with provision of method 3 of IS ; 10379-1982.

6. **SUITABILITY OF EARTH FOR EMBANKMENT**:

6.1 Soils shall be used for the embankment with approval of Dy. CE/ Con subject to the following:

(a) Organic clay silts and peat shall not be used.

(b) Poorly graded sands and gravels with uniformity coefficient of less than 2 should not be used for earth work for the bank to safe guard against liquefaction under vibration of moving loads or especially during earthquake tremor.

(c) In gravelly soil, percentage of gravel shall not exceed 30%.

(d) In situations where soils for construction of embankment consist of cobbles, boulders, rocks or waste fragments etc largest size of material should normally not be greater than 2/3 rd of the loose layer thickness. However it should be ensured that after every 1 to 3 meter of such construction a 30cm layer of compacted soil (other than unsuitable soil for construction) be provided. A detailed slope stability analysis also needs to be carried out to ensure stability of such embankments. (Para No 5.2.2 of RDSO GUIDELINES FOR EARTHWORK IN RAILWAY PROJECTS)

(e) The soil shall be of “Low” “Potential expansivity” also called degree of expansion (refer IS: 2911- Part III). The differential free swell also called free swell index determine in accordance with IS:2720 part XI –1977 shall not exceed 20%.

6.2 Top 1m of the embankment shall be constructed with earth with liquids limit not exceeding 45 to avoid shrinkage, cracking of soil; etc. during change of weather. In case such soil is not available at a reasonable cost, the Engineer may permit the complete bank to be constructed out of the earth as available and increase the thickness of the blanketing suitably.

6.3 The moisture content of the soil, which the contractor brings to site for making embankment, should be appropriate for compaction as specified in these specifications, otherwise he has to make arrangement for adding extra moisture or drying the soil to achieve the desired moisture content.

6.4 PREFERRED FIELD MATERIAL:

(i) Fine particles (less than 75 size) less than 50%.

(ii) Liquid limit less than 35% and plastic index less than 15.

(iii) Uniformity coefficient (C) greater than 7.

(iv) Minimum achievable Dry Density with heavy compaction as per IS: 2720 Pt. VIII should be greater than 1.85 gm/cc.

7. **COMPACTION :**

7.1 Before work is commenced, the contractor is advised to conduct, field compaction trials for his own guidance so that compaction is efficiently and economically achieved. This trial should also be used to assess the thickness of the loose layer of soil that should be adopted for formation of the bank, as well as to determine the most efficient type of rollers. RDSO guidelines have given the suitable, type of roller and the same may be taken as guidance.

7.2 Water, if required, for adding to the earth shall be arranged free of cost by the Contractor himself.

7.3 The compaction of soil is essentially required for obtaining a uniform soil mass of desired density and known soil properties. The method of compaction should, therefore, be shown accordingly.

7.4 In cutting area the final surface shall be suitably compacted by suitable type of roller to achieve desired dry density/strength.

7.5 SUITABILITY OF TYPE OF ROLLER:

Type of soil	Suitable type of roller
Course grained soil such as gravels, sands and gravel sand mixtures with very little trace of fines	Rubber tyre roller, vibratory plate or smooth wheel roller.
Gravels or sands with appreciable amount of silt or clay	Rubber tyre roller, vibratory rollers, sheep foot rollers.
Silts and clays of low plasticity.	Rubber tyre roller, vibratory rollers, sheep foot roller.
Silts and clays of high plasticity.	Sheep foot rollers and vibratory rollers.

8. METHOD OF COMPACTION OF EARTHWORK

8.1 After site clearance all pockets and depressions left in the soil, if any, shall be made good and compacted. Generally, Earthwork shall be done in layers not exceeding 300 mm thick in loose state and compacted with suitable roller to obtain the specified density as per IS: 10379 –1982. The number of passes of the roller and the optimum thickness of each layer will be fixed after carrying out field trials with the roller proposed to be used from time to time from location to location. The main criteria are being to obtain the maximum density achievable uniformly.

8.2 Cohesionless soils shall be compacted to get a minimum density index (relative density) of 70% as obtained in accordance with IS: 2720(Pt. XIV) – 1983.

8.3 All other types of soils when compacted shall attain at least 98% of the maximum dry density as determined using heavy compaction in accordance with IS: 2720 (Pt. VIII) – 1983 followed by field trials as per IS: 10379 – 1982. In case, there are difficulties in achieving 98% of the MDD values as obtained by Laboratory test, in the field trials, the same may be relaxed upto 95% of MDD with the specific approval of Chief Engineer/construction, recording reasons of such relaxation

8.4 If the soil is dry, water shall be sprinkled either in the borrow pit or over the spread layer, as convenient in order to obtain a workable moisture content before rolling is commenced. Where the natural moisture content of borrow pit is high, compaction in higher moisture contents can be allowed by the permission of Engineer-in-charge.

8.5 Each layer shall be compacted to the specific density over its entire width commencing from the two sides, before another layer is started.

8.6 While compaction it shall be ensured that there is minimum overlap of 150 mm between each run of the rollers.

8.7 Care should be taken during the compaction operation to slope the surface of the bank to facilitate the shedding and to minimize the absorption of rainwater, particular attention being given to the prevention of ponding.

8.8 The Railway shall ascertain the density of each layer of compacted soil by testing adequate number of soil samples.

8.9 The quality of compaction work shall be determined by considering the Mean Density of the samples collected mostly on either side of the center line at intervals of 10 M or so with a few taken at random near the two sides in each layer. The Mean Dry Density shall be equal to or exceed the minimum specified density. In no individual case the density be less than the minimum value specified by more than 2% otherwise further rolling shall be done at the appropriate location.

8.10 The contractor shall be allowed to lay a further layer of soil only after the compaction of a particular layer has been found satisfactory.

8.11 The top of the formation shall be finished to a slope of 1 in 30 away from the centers.

8.12 Extra width of 50 cm shall be rolled on either side, which after finishing the bank up to final height shall be dressed to final cross section by removing the loose earth or extra width. No extra payment for this extra width shall be made

9. In parts to embankment which are inaccessible to the specified rolling equipment, e.g. around and in contact with culverts, abutments or in proximity to structure where rolling equipment will either not be possible to operate, or not permitted to operate, compaction shall be accomplished by hand tamping followed with plate vibrators or suitable mechanical means in layer of thickness not exceeding 150 mm. In such areas, the maximum dry density to be achieved as a result of compaction shall not be less than 90% of the maximum value achievable at that moisture content.

East Central Railway
Office of the Chief Administrative Officer [Con]
Mahendrughat, Patna- 800004
Special Condition and Specification for blanketing

1. GENERAL.

1.1 The book "Guide line for Earthwork in Railway Projects issued by Geo-technical Engineering Directorate of RDSO in Nov.2009 OR the latest book "Guide line for Earthwork in Railway Projects issued by Geo-technical Engineering Directorate of RDSO along with the latest amendment known here, as "RDSO guidelines" shall form the basis of principles for conducting all testing and supply and compaction of blanketing materials in the embankment. A copy of this book can be purchased from the office of Chief admin. Officer(Con) ,East Central Railway, Patna at a price mentioned therein.

1.2 Standard Section for blanketing on formation for single lines, double line, conventional doubling are given in RDSO guidelines and the Indian Railways Permanent Way Manual [1986] and Indian Railways code for Engineering Department [1993] which are Govt. of India's publications. However, a set of such standard section can be purchased from the office of Chief Administrative Officer [CON]/ East Central Railway, at a price of Rs. 25/-. These sections are for guidance of contractors to assess the type of work involved but actual dimensions, side slope etc. may vary to some extent depending on local conditions.

1.3 [i] The Tenderer may submit along with this tender paper a number of samples if he so chooses. Each sample may be associated with its test result and corresponding rate in the schedule of items. However, for each sample the exact location of the quarry from where the material is proposed to be brought should be indicated. the Railway administration will test all the samples submitted by the Tenderer to assess their quality for suitability as blanketing materials. The sample, which will not be approved, will be rejected and rates given by the contractor corresponding to such samples shall not be taken into account while considering various tender. The Railway Administration will consider the rates quoted by the Tenderer only two such samples as have passed the quality test. While issuing letter of acceptance in favor of successful Tenderer, the Railway Administration shall specify one or two cheapest approved sample along with their corresponding rate for bulk supply.

[ii] It should be noted that cohesion less, non-erodible materials shall have to be confined in earth trenches in accordance with approved plans.

[iii] While selecting the samples for bulk supply, the Railway shall consider the total cost of blanketing including supply of materials, compaction and confining, if necessary the sample that gives the minimum total cost shall be accepted.

1.4 The contractor shall bring the bulk supply of blanketing materials according to approved sample and stack the same on the finished formation where the quality shall be checked. After approval of the quality the Contractor shall be allowed to spread the materials and start compaction.

1.5 The top surface of the formation shall not be damaged by the Contractor in the process of spreading the material of blanketing on the formation. Any damage done to the formation shall be made good [in necessary compaction] by the Contractor at his own cost.

2. QUALITY OF BLANKETING MATERIALS: The blanketing materials should satisfy the following properties:-

2.1 The materials should be coarse, granular and from hard rock.

2.2 The materials should have small quantity of fines. If the fines are plastic, the percentage of fines i.e., particles up to 75 microns should be up to 5%. If fines are non-plastic these should be up to 12%.

2.3 The materials should be properly graded and its particles size distribution curve should lie within the enveloping curves. [RDSO Guide lines]

2.4 Uniformity Co-efficient D_{60}/D_{10} should be above 7, Co-efficient of curvature = $[D_{30}]2/D_{60}\times D_{10}$ should be within 1 and 3.

3. METHOD OF LAYING

3.1 The blanket should generally cover the entire width of the formation from shoulder to shoulder except that in case of sand or similar erodible materials, it should be confined within beams of width 60cm to 75cm.

3.2 If erodible material is used as blanket it should be confined in a trench and sand drains should be provided across the cess to drain the track and the blanket [SK-C]. These cross sand drains with adequate slope should be5 to 10cm below the bottom of the blanket and spaced 2 to 4m apart.

3.3 The materials should be laid in layers of not more than 25 cm and each layer compacted to specifications before next layer is laid.

4. <u>COMPACTION</u>

4.1 All the blanketing material should be compacted by mechanical means. The method of compaction and appropriate type of rollers are suggested in RDSO guidelines. However, use of plate vibrator of ¾ tones capacity is recommended.

4.2 COHESIONLESS SOIL :

[i]The control of moisture content is not important in this case. However, best compaction is achieved when the soil is very wet [near saturation]. The compaction of such soil shall be done by adding sufficient water to it so that it compacts well and efficiently, does not slip away [when too dry] and also does not flow [when too wet] under rollers, such moisture content shall be determined by field trials.

(i) In Cohesion less blanketing materials the blanket should be compacted to get minimum dry density index [relative density] of 70% as obtained in accordance with IS 2720 [Pt. XIV]/ 1983.

4.3 The quality of compaction shall be determined by considering the mean density of number of samples taken in each layer. The mean dry density shall be equal to or exceed the minimum density specified above. In no individual case, shall be density be less than the minimum value specified by more than 2% otherwise further rolling shall be done at the appropriate location.

4.4 The top of the blanket shall be finished to a slope of 1:40 away from the center of the formation. Each layer shall be compacted to the desired density over its entire width commencing from the both sides. There should be a minimum over lap of 150 mm, between each run of the roller

5. <u>QUALITY CHECK IN FIELD :</u>:

The contractor shall established laboratory at site with such equipment and personal in sufficient numbers for checking quality of the blanketing materials as well as for checking the quality of the compaction of the blanket. No separate payment shall be made to the contractor for this.

6. In case of cohesive blanketing materials, if required, it may also be confined with provision of sand drain with specific instructions of the Engineer at site

7. When dismantling of any existing structure is involved to facilities construction, the scheme for dismantling of the existing structure shall be submitted by the contractor and excess shall be done after approval of Railway.

[a] The dismantling of structure should be done under proper supervision and as per approved scheme of dismantling

[b]. At major dismantling sites minimum level of supervision shall be Senior Section Engineer [In Charge], who should be nominated by Dy. Chief Engineer in writing.

[c] The dismantling Plan should be scrutinized by the Drawing Office and H.O.D. in case of Construction Organization. The dismantling Plan should invariably show various stage of dismantling, equipment to be used for dismantling area likely to be affected by debris, any adjacent building likely to be affected and action to be taken thereof.

[d] Proper barricading should be done to stop access of unauthorized personnel near the dismantling area. Where ever necessary assistance of RPF should be taken to prevent people from coming close to dismantling area. Sign Board warning people not to enter the danger zone should also be displayed by the contractor.

8. SAFE MEASURE: The following measures should be adopted to ensure safety of the train as well as work force.

[i] The contractor shall not start any work without the presence of railway supervisor at site.

[ii] Wherever the road vehicles and/ or machinery are required to work in the close vicinity of railway line, the work shall be so carried out that there is no infringement to the Railway's schedule of dimensions. For this purpose, the area where road vehicles and/or machinery are required to ply, shall be demarcated and acknowledged by the contractor. Special care shall be taken for turning/ reversal of road vehicles/machinery without infringing the running track. Barricading shall be provided wherever justified and feasible as per site conditions.

[iii] The look out and whistle caution orders shall be issued to the trains and speed restrictions imposed where considered necessary suitable flagmen/detonators shall be provided where necessary for protection of trains.

[iv] [a] He supervisor/workmen should be counseled about safety measures. A competency certificate to the contractor's supervisor as per Performa annexed shall be issued by AEN which will be valid only for the work for which it has been issued.

[b] The unloaded ballast/rails/sleepers/other P. Way materials after unloading along track should be kept clear off moving dimensions and stacked as per the specified heights and distance from the running track.

[c] Supplementary site specific instructions wherever considered necessary, shall be issued by the Engineer-in charge.

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendrughat, Patna- 800004

SPECIAL CONDITION AND SPECIFICATION FOR BRIDGE WORKS

1. The tenderer are required to inspect the site and carry out careful examination so as to satisfy themselves as to the nature of work involved and facilities available at site. They should also note carefully all the existing structures and those under construction through other agency (if any), and should take adequate me protection to all such structures, including Railway track during course of execution of work under this contract. The rates quoted by the tenderer(s) and accepted by the Railway Administration must cover all such charges.

2. Railway land as existing and as sparable will be made available to the contractor free of charge for building their stores Godown, camp office, girder casting/fabrication yard etc. The contractor shall make their own arrangement at their cost for leveling and dressing the ground or developing the land.

3. **WATER**: Water required for the work and also for drinking purpose should be arranged by the contractor from his own source and at his cost. If water from Rly's source is available near the site of the work the Rly may supply the same to contractor from one point only on Railway's usual charge and the contractor should arrange for extra pipe as may be required for distribution at his cost. Water used for cement concrete/RCC/PSC and all sorts of concrete work should be tested as per codal Provision for its suitability for the work and test report should be obtained initially from the approved Govt. laboratory at Contractor' s cost and submitted DY.CE/Con or DEN/Con-in-charge of the work. Source of water should not be changed without prior approval of the DY.CE/Con-in-charge. Locally available water, which is not suitable for concrete work, may be allowed to be used for curing purpose only.

4. **ELECTRICITY**: The contractor shall make his own arrangement for electricity required for running machinery and illumination at his own cost. The Railway will recommend his application to the Civil Electricity Board/Company and render necessary assistance as possible. If the contractor is unable to get the supply from the Board/Company and Railway is required to supply, then supply, if available, will be provided at one Point from there the contractor will lay the distribution system to various points of work. Such supply made by the Railway will be as per standard terms and conditions applicable to outsiders as stipulated by the Chief Electrical Engineer, E. Rly. The railway undertakes no responsibility for shut down, load shading or failure of power supply and consequent help-up of work, idle labour, machinery etc. and no compensation, payment is admissible. The charges on account of electricity supplied, will be recovered from the contractor's bills, but he will have to deposit in advance the installation charges etc. as will be fixed by the Electrical Department.

5. **CORRDINATION WITH OTHER CONTRACTORS :** The other works for bridge may be done simultaneously by the other agency of State Govt./Central Govt./Railway .Therefore the contractor should ensure that the works of the other contracts are not hampered in any way, rather he should co-ordinate/draw the programs in consultation with the Engineer-in-charge of the work, so that the work of this contract as a whole is completed within the target fixed. In case of any conflict between the two contractors in respect of working facilities at site, the decision of the Engineer-in charge of the work shall be final and binding on both the contractors.

6. **DAMAGE TO ADJACENT PROPERTIES/WORKS:** The contractor shall be held responsible for any damage of Railway/Public property including telephone line, cable etc., which may be caused by any of his action in connection with or in the execution of the work.

7. **SETTING OF THE WORK :** The contractor shall arrange without any additional charges requisite number of men with all the equipment and materials as necessary for the purpose of setting out of the work. Similar arrangement will have to be made by him at the time of measuring the work whenever required to be carried out by the Engineer-in-charge of the work.

8. **LOCATION AND LEVEL :** The contractor shall be responsible for the correct location, level and alignment according to the approved drawing notwithstanding that the Engineer-in-charge or his authorized representative shall have periodically checked the same.

9. **SUSPENSION OF WORK :** Engineer-in-charge may order the contractor to suspend any work for any reason whatsoever and no compensation for such suspension of work shall be payable to the contractor, However, the

additional time of completion of the work that may be sanctioned by the Railway Administration on written application of the contractor to complete such suspension of work.

10. **NIGHT WORK :** The contractor shall have to carry on with the work during night if considered essential to maintain he progress of the work and his quoted rates should be inclusive of any additional expenditure involved in the working at night.

11. The contractor must provide all plants and machinery with crew i.e. Drivers, cleaners and necessary consumable store like coal, fuel, oil, lubricating oils for Engine and provide adequate number of transport vehicle for bringing materials at site. They should undertake all temporary arrangement required for carrying out the work. The tenderer should submit a list of tools and plant in their possession for carrying out the work along with his offer.

12. Shoring on all sides of foundation trench will have to be adopted where necessary and as will be directed by the Engineers to return earth, at Contractor's cost.

13. The work involved in head and/or truck leading of materials and crossing of tracks will not be paid extra. The rate quoted should cover all such expenditure.

14. **UNFORSEEN / NEW ITEM of Work:** For unforeseen item of work for construction if required to be done, payment will be made by E.C. Rly's USSOR 2021 with percentage above and below quoted by tenderer in schedule "BXII". If any items are not covered by the USSOR 2021, the rate for such work will be arrived at by analysis based on labour and materials rate provide in the USSOR 2021. If no such analysis is possible from Schedule of Rates, the analysis will be made from prevailing market rates with 12 ½% contractors' overhead and profit.

15. The contractor shall provide all appliances, efficient and sufficient staff &labour for setting out and shall set out the works and every part thereof and shall be responsible for the accuracy of the lines, Levels and dimensions of the work in accordance with the drawings, further drawings, directives or instructions issued at any time to him and every facility shall be given to the Engineer and all persons, duly deputed or authorized by him in writing for checking the same. The Contractor shall also allow or amend any error in the dimensions, lines or levels to the satisfaction of the Engineer or his authorized representative without claiming any compensation for the same.

16. The contractor shall make his own arrangement on his own sole account for procuring all materials (except than those to be supplied by the Railway as per clause..... of the instructions to Tenderers) to be used on works under this Agreement with the Railway Administration.

The rates quoted by him, against the Schedule of items, should be entirely inclusive so as to cover any purchase price and/or royalties and/or compensation for surface damage paid or payable by the contractor to land owners Mining authority etc. and all other charges incurred by him whatsoever including all lead, lift etc.

17. If the contractor enters on land not belonging to or held by the Railway Administration for collection or quarrying of materials or any other purpose whatsoever he shall make his own arrangements with the owner or owners of such land, with regard to, and shall be solely/personally liable for the payment of any purchase price and/or royalties and/or compensation for surface damage, and the Rly. Administration shall in no circumstance be purport to be made party to any such arrangements and be liable for any such payment and/or compensation.

18. The contractor will not be entitled to any compensation for any delay for execution of the work arising from delay from the Railway Administration side. The delay so caused will be assessed and accepted by the Engineer determining any extension of the time required to complete the work for which purpose only accepted period of delay will be taken into consideration. If the matter is not brought to the notice of the Engineer immediately such delays occur, no consideration for extension of time will be made later on. The contractor must accept as final and binding the decision of the Engineer-in-charge of the work.

19. **QUALITY CONTROL :**

19.1 To ensure that the materials used for the work are as per the approved specifications, it is necessary for the contractor to have a small field laboratory with complete equipment at the site of work which will enable carrying out of standard tests for the quality of water, sand, aggregate and permeability test of concrete etc. The rates should also provide for equipment for casting, Curing and testing of sufficient number of 6" cubes for compressive tests. Testing of the cubes should be got done through Alipore National Test House or any other approved Government

Testing Laboratory as and when necessary, Periodical testing of water may also be got done through Alipore Test House or any other approved Government testing laboratory.

19.2 The Concrete work shall be done in accordance with Indian Railway Standard code of Practice for plain reinforce and pre-stressed concrete for general bridge construction (Concrete Bridge Code) or IS-456-2000 or relevant IRC codes as applicable.

19.3 All concrete items will be measured without any reduction for the volume of reinforcement as and steel structural.

19.4 Concrete will be as per IS code (IS-456-2000). All concrete should be vibrated except for concrete placed in water for the bottom plug. Strength specified for various concrete in Schedule of Items is for 28 days strength of the well foundation.

19.5 The mix of all controlled concrete to be used shall be designed suitably as per IS-10262-1982 to meet requirements or strength and economy. Number of cubes may be made by trial mixes and tested to achieve the desired strength of the concrete.

20. **AGGREGATE AND SAND :** Periodical sieve analysis of the aggregate and sand will be carried out as necessary to ensure that the percentage of different sizes of aggregate and sand do not vary from the worked out during designing the concrete Mix

21. **WORK TESTS AND STANDARD OF ACCEPTANCE:** Number of cubes to be taken and tested should be in accordance with the provisions made in IS code 456-2000 and the results should satisfy the minimum requirements given therein.

22. The work under Rly. Traffic or by temporarily or by blocking Rly. Traffic, should be carried out under the supervision of Engineers/Supervisors of the contractor who have adequate experience of carrying out such works.

23. The contractor should carry out the work in such a way that would ensure safety to Railway Traffic and Railway properties. The works whose execution is having safety implication, should be carried out only under the direct supervision of competent Bridge Supervisors from Railway.

24. **TRAFFIC BLOCK REQUIRED:** The contractor should specify the requirement of temporary block required for the work. Temporary blocks will be arranged by the Engineer-in-charge of the work. Temporary blocks will be arranged by the Engineer-in charge of the work for the minimum period as suits the operating Department of the Railway.

25. The contractor shall keep sufficient stand-by equipment like mixer vibrator etc. for concrete work so that concreting is not affected by break down of tools and plants.

26. On C.C. or R.C.C. work, no cement plaster shall be permitted. The shuttering with cement/line plaster finish may be adopted for roof slabs, lintels etc.

27. Where the concrete is cast on ground i.e. in foundation, bottom slab of R.C.C. Box etc. a water proof film of polythene shall be spread on the ground after ground is leveled and compacted, to prevent soaking of moisture/water of the concrete into the ground.

28. All the materials like aggregate, sand and bricks shall be as per specifications laid down is GCC Before use, all materials shall be approved by the Engineer-at-site, before use, they shall be cleaned of all mud, muck, grit etc. and shall be washed with clean water, if directed by Engineer, before use.

29. **ADMIXTURE:** Admixture confirmed as per RDSO guidelines (Report No. BS-25) may be used in concrete with Engineer's prior approval, if required.

30. For excavation in foundation, contractor shall ensure stability and safety of foundations as detailed in chapter 1 of East Central Railway Standard Specifications for Works and materials-2008.

31. Weep holes shall be kept in wing wall and abutment of bridges by placing thick gauge 50 mm Dia PVC pipe in the concrete before casting spaced 1.0 m vertically & horizontally staggered. No deduction in volume of contract will be made.

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendru ghat, Patna- 800004

Special condition and specification of contract for foundation and substructure.

1. **SITE CLEARANCE:**

Site clearance wherever involved shall be undertaken and the same shall be considered incidental to the earthwork items and the contract unit rates for the same shall be deemed to be including of clearing and grubbing operation.

2. **EXCAVATION FOR STRUCTURES**

2.1 Pits and trenches for foundations for bridges, culvert walls and other structures shall be taken out to the levels and dimensions shown on the approved Drawings or to such other levels and dimensions as the Engineer may direct. The bottoms of all excavations shall be carefully leveled and stepped or benched as directed by the Engineer. Any pocket of soft or loose materials and fissures in the bottom of pits and trenches shall be removed and the cavities so formed filled or grouted with concrete as directed by the Engineer. When any excavation has been taken out and trimmed to the required levels and dimensions, the Engineer shall be informed accordingly so that he may inspect the complete pit or trench and no excavation shall be filled in and covered with concrete until it has been so inspected and until the contractor has been authorized to proceed with the work. All surplus excavated materials from such excavations not required for refilling shall be deposited in embankments, or otherwise disposed off as directed. The work shall include all necessary sheeting, shoring, bracing, draining and pumping, the removal of all logs, stumps, stubs and other deleterious matter, obstructions necessary for placing the foundations.

When required by the Engineer, material in the last 300 mm of depth of the excavations shall not be removed until immediately before the concrete is to be placed.

All excavations for structures shall generally be as small as practicable consistent with the proper construction of the works. Any excavation taken out to a greater depth than that required shall be backfilled with concrete of the foundation grade at the cost of the contractor.

Where water is met with the excavation due to stream flow, seepage, springs, rain or other reasons, the contractor shall take adequate measures such as bailing, pumping, constructing diversion channel, drainage channels, bunds and other necessary works to keep the foundation trenches dry when so required and to protect the green concrete against damage by erosion or sudden rising of water level. Approval of the Engineer to any method adopted in this regarding shall, however, not relieve the contractor of the responsibility for the adequacy of dewatering and protection arrangements and for the quality and safety of the works.

Refilling of foundation pits and trenches shall be carried out only after the foundation and structural works within the excavations have been inspected and approved by the Engineer. Unless otherwise directed by the Engineer all fillings shall consist of approved materials. All space between foundation concrete and the sides of excavation shall be refilled to the original surface, using approved plant in soil layers not exceeding 250 mm loose thickness, which shall be watered and compacted to a dry density not less than that of the adjoining soil strata. Timber sheeting and other excavation supports shall be carefully removed as filling proceeds but the removal of such supports will not relieve the contractor of his responsibility for the stability of the works.

MEASUREMENT FOR PAYMENT:

Excavation for structures shall be measured in cubic meters, limited to the dimensions shown on the Drawings or as directed by the Engineer keeping in view practical necessity for proper execution of the work.

Foundation sealing, dewatering including pumping shall be deemed to be incidental to the work and no extra payment shall be payable for this work.

For any treatment of foundation such as grouting of cavities and fissure, extra payment will be made at mutually agreed rates.

2.7 **RATES :**

The Contract unit rate for the items of earthwork in excavation for structures shall be paid in full for carrying out the following operations:

(i) Setting out including all ancillary work like pegging and supply of pegs etc.
(ii) Construction of necessary sheeting, shoring and bracing and their subsequent removal.
(iii) Removal of all logs, stumps, grubs and other deleterious matter.
(iv) Back filling upto the top of foundation, clearing up the Site and disposal of all surplus material within leads up to 200 meters inclusive of all lifts and descents etc.
(v) All labour, materials, tools, construction plants, safeguards and incidentals necessary to complete the work upto the specifications

3.0 **MATERIALS FOR STRUCTURES:**

All materials to be used in the works shall be in conformity with the requirements laid down as below: -

If any special material, not covered here is required to be used, it shall conform to relevant IS Specifications if there are any, or to the requirements specified by the Engineer.

3.1 **BINDING WIRE:**

Binding wires used for binding the reinforcements shall be of approved soft annealed G.I. wire not less than 1mm (18 SWG) size and conforming to IS 280.

3.2 **STRUCTURAL AND REINFORCEMENT STEEL:**

3.2.1 **Structural steel:** All structural steel shall conform to IS:2062:2006for MS/HTS steel.

3.3.2 The reinforcement steel shall be Fe-500 Thermo Mechanical Treated (TMT) bars conforming to IS 1786.

3.3 **TIMBER:**

The timber used for structural steel purposes whether permanent / semi-permanent or temporary work shall conform to IS: 883.

3.4 WATER FOR CONCRETE AND MORTAR:

Water shall be clean and free from injurious amount of deleterious materials. Normally potable water from an approved source may be considered satisfactory for washing aggregates, mixing and curing concrete. Water shall comply with specifications as stated in IS: 456.

3.5 **OTHERMATERIALS:** All materials not herein specified fully and which may be allowed to be used in the works at the discretion of Engineer shall be procured in accordance with relevant IS or in absence of an IS code, the appropriate codes as described under Clause 49 of Special Conditions of Contract. The Engineer or his representative shall have the right to inspect and determine whether all or any of the materials brought to site for use in the works are suitable for the purpose. Any materials rejected by Engineer or his representative shall be removed from the site and replaced with suitable materials at his own expense by the contractor.

3.6 **AGGREGATES FOR CONCRETE**:

3.6.1 General – The aggregates (coarse and fine) for concrete shall comply in all respects with IS: 383 and shall be obtained from an approved source.

Aggregates, which are not clean, are to be washed to the satisfaction of the Engineer or his representative, in water of quality as described in Clause 3.4. If the Engineer so directs, the contractor shall provide and operate a washing plant to ensure adequate supply of clean aggregates within the approved grading limits. All such washed aggregates shall be stored and drained for at least 24 hours before being used for concreting.

The coarse aggregates, unless otherwise specified or authorized by the Engineer shall be delivered to the site and shall consist of approved stone free form flaky or elongated pieces.

All aggregates shall be protected from dust contamination by methods approved by and to the satisfaction of the Engineer's representative.

3.6.2 The fine and coarse aggregates shall be measured separately by weight and mixed in the proportions specified or permitted for the various qualities of concrete except where volume batching is permitted by the Engineer. The individual and combined grading shall be as per relevant IS Codes and to the satisfaction of Engineer.

3.7 **SAMPLES AND TESTS**:

3.7.1 **General**

The samples of all the materials proposed to be used by the contractor in the work shall be got tested by the contractor in an approved laboratory and necessary test certificates indicating that all these materials conform to the various provisions laid down in the relevant IS codes other relevant standard specification these specifications and shall be submitted to the Engineer on request free of charge.

3.7.2 **TEST CERTIFICATES**:

All manufactures certificates of tests, proof sheets, mill sheets etc. showing that the materials have been tested in accordance with requirements of the appropriate Indian Standard other relevant standard specification these specifications, shall be supplied free of charge on request to the Engineer or his representative.

3.7.2.1 Samples of the following materials shall be submitted to the Engineer or his representative free of charge for testing and approval.

(i) Stone

(ii) Aggregates

(iii) Bituminous materials.
(iv) Any other materials as directed by Engineer.

Samples provided to the Engineer or his representative for their retention is to be in labeled boxes suitable for storage. Materials or workmanship not corresponding in Character and quality with approved samples shall be rejected.

Samples required for testing and approval must be supplied giving sufficient time to allow for such testing and approval, due allowance being made to the fact that if samples are rejected further samples shall be required. Delay to the works arising from the late submission of samples shall not be accepted as a reason for delay in completion of the work.

3.7.2.2 The testing of the materials may be carried out by the Railway in its own laboratory if facilities for such tests exist. If the materials are not found to comply with the various provisions laid down in the relevant I.S. Codes other relevant standard specifications these specifications, the same shall be rejected irrespective of the test certificate submitted by the Contractor in compliance with Clause 3.7.1 and 3.7.2.

3.7.2.3 In addition the Engineer shall have the right to require the Contractor at any time to draw samples of aggregates or any other materials from stockpiles on the site or any other locations to be indicated by the Engineer or his representative. The samples are to be drawn in accordance with IS: 2386 and tested in a laboratory approved by the Engineer in accordance with the appropriate Clause of IS 2386 at the cost of the contractor.

3.7.2.4 Tests for the determination of impurities in the sand shall be made once daily until the Engineer is satisfied that the specified compressive strength is being regularly obtained when with his approval, such tests shall be made once weekly and at other times as directed to the Engineer.

3.7.3 **ADDITIONAL TESTS**:

In addition to the tests required under Clauses hereof, the Engineer or his representative may order/other tests including permeability test of concrete to be carried out by an independent person appointed by him at such place or in such laboratory as he may determine in accordance with the appropriate Clauses of IS 2386 and cost of such tests shall be borne by the Contractor.

3.7.3.1 The results of all such tests as described herein above and later or in preceding paras shall be forwarded to the Engineer or his representative for his retention as record.

3.7.3.2 INSPECTION OF MATERIALS:

3.7.3.3 Whenever the Engineer or his representative gives notice to the contractor that materials are to be inspected off the site, the contractor shall, having regard to the location of the materials and the nature of the inspection, test or examination required, give to the Engineer or his representative at least one week notice of such materials being ready for inspection, test or examination.

3.7.3.4 Delay to works arising from the late submission of such notice will not be acceptable as a reason for delay in the completion of the works.

3.7.5. REJECTION OF MATERIALS:

3.7.5.1 Materials shall be tested before leaving the manufacturer's premises, where appropriate. Materials may also be tested on the site and they may be rejected if found not suitable or not in accordance with the specifications notwithstanding the result of tests at the manufacture's works or elsewhere or test certificates.

3.7.5.2 The Engineer or his representative shall have the right to order, at any time, any aggregates or other construction materials, which do not meet with his approval, shall not be used in the works. Such rejected materials shall be removed from the site by the Contractor at his own expenses, notwithstanding any prior approval which might have been given earlier.

3.7.5.3 In case of default on the part of the contractor in removing rejected materials within the time specified in notice, the Engineer shall be at liberty to get these removed by other means at the cost of the contractor.

3.7.5.4 STORAGE OF MATERIALS:

3.7.6.1 All materials to be used in permanent works shall be stored on racks, supports, stock piles in bins under cover etc. as appropriate, to prevent deterioration or damage from any cause whatsoever to the satisfaction of the Engineer or his representative.

3.7.6.2 The Contractor shall at all times maintain on the site such quantities of each type of aggregates as are considered by the Engineer or his representative to be sufficient to ensure continuity of work. Each type of grading of aggregates shall be stored in separate stacks on a hard floor having sufficient slope to ensure adequate drainage of surplus water. Wet and washed aggregate shall be kept in storage for at least 24 hours to ensure adequate drainage before being used for concreting.

3.8 PLAIN AND REINFORCED CEMENT CONCRETE:

3.8.1.1 **GRADE OF CONCRETE**:

For all items of concrete in any part of the bridge structure Design mix concrete shall be used. However, nominal mix concrete may also be used where it is shown on the drawings or as directed by the Engineer, for concrete of grade M 20 and below only.

3.8.2 **TYPE OF CEMENT**:

In general, for all mass and reinforced concrete PPC/OPC cement conforming to IS 12269/IS 1489/IS 455 shall be used. However, Railway reserves the right to ask the contractor at any time for using other varieties of standard cement complying with the relevant IS codes or any other standard specifications and the contractor shall use the same without any additional claims whatsoever on this account.

In case of Pre-stressed concrete works only OPC is to be used.

3.8.3 **STRENGTH REQUIREMENT OF CONCRETE**:

3.8.3.1 For concrete work where mix design concrete is to be used, mix shall be designed. Mix design shall be done as per I.S. code or any other approved method for concrete mix design as directed by the Engineer. Mix design will be done by the contractor and got approved from the Engineer.

3.8.3.2 For ordinary concrete, mix is not required to be designed by preliminary tests and proportions of cement; fine and coarse aggregates are specified by volumes.

3.8.3.3 In designation of concrete mix letter 'M' refers to the mix and number to the specified 28 days characteristic compressive strength of that mix on 150 mm cubes expressed in N/mm^2.

3.8.3.4 The compressive strength requirements for various grades of concrete shall be as given in table below:

GRADE OF CONCRETE	SPECIFIED CHARACTERISTIC COMPRESSIVE STRENGTH OF 150 MM CUBE AT 28 DAYS IN N/mm^2
M15	15
M20	20
M25	25
M30	30
M35	35

3.8.3.5 Where the strength of a concrete mix as indicated by tests lies in between the strength of any two grades specified in table above such concrete shall be classified for all purposes as concrete belonging to the lower of the two grades between which its strength lies.

3.9 SETTING UP OF FIELD LABORATORY BY THE CONTRACTOR :

The contractor shall set up a field laboratory of his own at work site as per site requirement which should be open for use and inspection by the Railway at any time All the pressure gauges and other machines, equipment and measuring instruments of the laboratory shall be got checked and calibrated regularly as directed by the Engineer by an independent agency and the adjustment certificates shall be furnished to the Engineer. The Contractor shall render all reasonable assistance and help in making such checks and tests etc. The cost of all checks and calibrations shall be borne by the Contractor. The cost of all tests for materials and cubes shall be borne by the Contractor.

3.10 TESTS AND STANDARD OF ACCEPTANCE:-

3.10.1 PRELIMINARY TEST FOR DESIGN MIX CONCRETE:

3.10.1.1 Design of the mix shall be carried out by the Contractor in his own laboratory in presence of the Engineer's representative.

3.10.1.2 Trial mixes shall be made using samples of the aggregate and cement and water proposed be used in the works.

3.10.1.3 Should the strength shown by the preliminary tests prove to be below the figures specified in Para 3.8.3.4 the Contractor shall make such changes in proportions as are required to bring the concrete up to the required strength.

3.10.1.3 Wherever mix has been approved, no variations shall be made in the proportions, the original source of the cement and aggregates or in the type, size and grading zone of the latter including water cement ratio without the consent of the Engineer who may require further tests to be made.

3.10.1.4 For Design Mix concrete, the concrete mix shall be so designed as to attain specified characteristic compressive strength of 150 mm cube at 28 days as indicated in IS 456.

3.10.2 WORKS STRENGTH TESTS FOR DESIGN MIX AND ORDINARY CONCRETE:

3.10.2.1 The Contractor shall be held responsible for ensuring that the crushing strength of the concrete as placed is not less than the designed strength as per approved plans.

3.10.2.2 Works strength tests shall be made in accordance with IS: 516. Each test shall be conducted on ten specimens, five of which shall be tested at seven days and the remaining five at 28 days. The samples of concrete shall be taken on each day of concreting and cubes shall be made at the rate of one for every 5 cubic meters of concrete or a part thereof. However, if concreting done in a day is less than 15 cubic meters, the minimum number of cubes can be reduced to 6 with the specific permission of the Engineer or his representative. Similar work tests shall be carried out whenever the quality and grading of materials is changed irrespective of the quantity of concrete, poured. Cement used for making the test cubes shall be supplied by Contractor within his quoted rates.

3.10.2.3 The Contractor shall provide at his own expense all necessary labour, materials including concrete moulds, equipment for sampling and all other ancillaries required in preparing, specimens etc. as given in Clause 3.10.2.2 and arrange to carry and test these specimens in his owns field laboratory. The Contractor shall test these specimens in presence of the representative of Engineer. Duplicate results shall be maintained under the joint signature of the Contactor and the Engineer's representative, one set of the result being kept with the Contractor and the other with the Engineer's representative.

3.10.2.4 All work shall be carried out under the supervision of a qualified and competent Engineer of the Contractor who shall supervise proportioning, placing and compacting of concrete at all stages.

3.10.2.5 The Engineer reserves the right to take samples and concrete test cubes independently at his own discretion. The contractor shall provide all facilities at his own expense, in preparation of such samples and concrete test cubes such as labour, material including concrete moulds, equipment for sampling and all other ancillaries required in their preparation. The contractor shall also arrange to transport these specimens to the Railway's laboratory / Govt. approved laboratories at his own cost. Contractor shall depute his representative during testing who shall sign the test results as a token of contractor's acceptance.

3.10.3 **STANDARD OF ACCEPTANCE**

The acceptance criteria for concrete shall be as indicated in IS 456.

3.11 PROPORTIONING CONCRETE :

For high quantity of concrete Design mix shall be followed and for small quantity of concrete ordinary nominal mix may be followed.

3.11.1 DESIGN MIX CONCRETE:

3.11.1.1 The proportions of the ingredients shall be taken by weight from the stock piles collected at site and already approved on the basis of preliminary tests. Care shall be taken that the supply of properly graded aggregate of uniform quality is maintained till the completion of works. Grading of aggregate shall be controlled by obtaining the coarse aggregates in different sizes and blending them in right proportions as required. Grading of coarse and fine aggregate shall be checked as frequently as possible and as determined by the Engineer.

3.11.1.2 Cement shall have to be weighed from bulk stocks at site and not by bags; it shall be weighted separately from the aggregates.

3.11.1.3 Water shall either be measured by volume in calibrated buckets or weighted. All necessary equipment shall be maintained in a clean and serviceable condition. Their accuracy shall be periodically checked.

3.11.1.4 To maintain the specified water cement ratio constant and at its correct value, moisture content in both fine and coarse aggregates shall be determined with reference to IS 2386 (Part-III) and amount of mixing water shall then be adjusted suitably.

3.11.2 ORDINARY CONCRETE:

3.11.2.1 Ordinary concrete mix shall generally be specified by volume. Volume of ingredients shall be worked out taking 50 kg. of cement as 0.035 cum in volume. While measuring aggregates by volume, shaking, ramming or hammering shall not be done. Allowance for bulking of damp sand shall be made as per IS: 2386 (Part-III).

3.11.2.2 Ingredients required for ordinary concrete containing one 50 Kg. bag of cement for different grade of concrete is given below: -

Grade of Concrete	Mix by volume
M 10	1:3:6
M 15	1:2:4
M 20	1:1½:3

3.11.3 QUANTITY OF WATER:-

3.11.3.1 Optimum quantity of water shall be mixed just to produce a dense concrete of required workability. Workability shall be such that the concrete surrounds and properly grips all reinforcements. The degree of consistency, which shall depend upon nature of work and method of vibration of concrete shall be determined by regular slump tests, Usually for mass concrete in R.C.C. foundation works where vibrators are used the slump shall be within 10mm to 25 mm.

3.11.3.2 The workability of concrete both ordinary and Design Mix of different grades used in different components shall be determined by regular slump tests to be carried out by the Contractor at his own cost, the frequency of such tests and the natures of slumps shall be maintained within the limits specified by the Engineer. The Engineer also reserves the right to carry out the slump tests independently at his own discretion.

3.11.4 MIXING CONCRETE:-

3.11.4.1 All concrete shall be mixed at site in a Batching Plant drum type mechanical mixer of first class working condition to the satisfaction of Engineer-in-charge. Mixing shall be continued till materials are uniformly distributed and a uniform color of the entire mass is obtained and each individual particle of the coarse aggregate shows complete coating of cement mortar. The mixing shall in no case be less than 2 minutes after all the ingredients have been put into the mixer.

3.11.4.2 Mixers, which have been out of use for more than 30 minutes, shall be thoroughly cleaned before putting in a new batch. Mixing plant shall be thoroughly cleaned before and after use. A stand by mixing plant, equivalent to that in use, shall be provided and maintained ready for immediate use during any breakdown.

3.11.5 **USE OF ADMIXTURES**:

The admixture to be used in the concreting work should conform to IS: 9103. The admixtures to be used should be of approved quality and it should not adversely affect the properties of concrete or mortar particularly in respect of strength, volume- change, durability and it should have no deleterious effect on reinforcements. Admixtures containing Calcium chloride shall not be used in structured concrete containing reinforcement, pre-stressing tenders or other embedded metal. The admixtures containing Cl & SO3 ions shall not be used. Admixtures containing nitrates shall also not be used. Admixtures based on thiocyanate may promote corrosion and therefore shall be prohibited.

3.11.6 **FORM WORK**:

3.11.6.1 The term form work includes all temporary or permanents forms essential for forming the concrete, together with all temporary construction props, bracings, ties required for the support. In general the erection and removal of formwork shall be in accordance with the provision given under IRS Concrete Bridge code.

3.11.6.2 **CONSTRUCTION AND PREPARATION OF FORM WORK BEFORE CONCERETING:**

Forms for concrete shall be made of either metal or timber; suitably ply lined and is of substantial and rigid construction true to shape, alignment and dimensions as shown on the approved drawings.

Forms shall be mortar tight and shall be made sufficiently rigid by the use of ties and bracings to prevent any displacement, deflection or movement of any kind. They shall be strong enough to withstand the weight of the construction, all pressure, ramming and vibration, movement of persons, materials and plant during and after placing the concrete. Special measures shall be taken to ensure that the formwork does not hinder the shrinkage of concrete because without these cracking could occur before the formwork is removed. The formwork should take due account of the calculated amount of positive or negative camber so as to ensure the correct final shape of the structures.

When the forms are ready for commencing concreting, the contractor shall inform the Engineer or his representative to inspect and accept the form-work and forms as to their strength, alignment and general fitness. Being satisfied with the form work Engineer then may allow the contractor for pouring concrete but such inspection and permission shall not relieve the contractor of his responsibility for safety of man, machinery, materials and for results obtained.

3.11.6.3 **REMOVAL OF FORM WORK:**

The consent of Engineer or his representative shall be obtained in all cases before removing any formwork but such permission shall not relieve the contractor of his responsibility in respect of any injury or damage to the concrete work arising from the removal of the forms.

Forms shall be so constructed and fitted as to be removable in sections in the desired sequence without damaging the surface of concrete or disturbing other sections.

Due consideration shall be given to the local conditions, character of structure, the weather, climate and temperature and other conditions that influence the setting of concrete before removal of formwork.

Where internal metal ties are permitted they shall be extracted or cut without causing any damage to concrete and remaining holes filled with mortar. No permanently embedded metal part shall have less than 25 mm clear cover to the finished concrete surface. The contractor shall make good, at his own expense, any injury or damage to the concrete work arising from removal and striking of forms and supports.

The form works shall be cleaned and made good to the satisfaction of the Engineer before re-use. The cost of all form-work shall be deemed to have been included in the rate for cement concrete items of work and shall not be paid separately.

3.11.7 TRANSPORT, PLACING AND COMPACTION OF CONCRETE:

3.11.7.1 The concrete work will be done by mixing cement, sand and coarse aggregate in the computer controlled automatic batching plant, transported to the site in transit mixtures and concrete placed in position by concrete pumps.

Batching plant, transit mixtures and concrete pump should be of adequate capacity so that requirement of placement of concrete without construction joint can be met in a period of 10 to 12 hours. All concrete shall be so transported and placed that no contamination, segregation or loss of its constituent materials takes place.

3.11.7.2 All form work and reinforcement, contained in it shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete. No concrete shall be placed in any part of the structure until the approval of Engineer or his representative has been obtained. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer. Concrete when deposited shall have a temperature of not less than 4.5^{o}C and not more than 38°C. In extreme weather conditions, provisions of IS 456 should be followed:

3.11.7.3 Except where otherwise agreed to by the Engineer or his representative concrete shall be deposited in horizontal layers to a compacted thickness of not more than 450mm when internal vibrators are used and not exceeding 300mm in all other cases. In no case concrete shall be allowed to be dropped from a height of more than 2 meters.

3.11.7.4 When concrete is conveyed by chutes the plant shall be of such size and design so as to ensure practically continuous flow. Slope of the chute shall be so adjusted that the concrete flows without the use of excessive quantity of water and without any segregation of its ingredients. The delivery end of chutes shall be as close as possible to the point of deposit. The chute shall be thoroughly flushed with water before and after each working period and the water used for this purpose shall be discharged outside the formwork.

3.11.7.5 All concrete shall be compacted to produce a dense homogeneous mass with help of vibrators except in case of concrete poured under water, where vibrators cannot be used. To ensure thorough and properly compacted concrete, the contractor shall carry out necessary compacting factor tests at his own cost at such frequency and at the value of compacting factor to be maintained as decided by the Engineer. The Contractor shall have to carry out other tests like penetrometer and Vee Bee consistometer tests or any other tests as directed by the Engineer at his own cost. The Engineer, however, reserves the right to carry out such tests independently at his discretion. Sufficient vibrators in serviceable condition shall be kept at site so that spare equipment is always available in the event of breakdowns. Internal vibrators shall be capable of producing not less than 10,000 cycles per minute and external or form vibrators not less than 3,000 cycles per minute. Vibration shall not be applied through reinforcement and where vibrators of the immersion type are used, contact with reinforcement and all inserts shall be avoided, as far as practicable.

3.11.8 **CONCRETING UNDER WATER**:

3.11.8.1 The methods, equipment, materials and proportions of the mix to be used shall be got approved by the Engineer or his representative before concreting under water. 10 percent extra cement shall be added per mix of concrete over that required by the grade specified. Greatest care shall be taken to prevent the cement being washed out and the concrete shall be deposited by means of a tremie or using the skip boxes system. Pumping shall always be kept as nearly level as possible to prevent formation of seams.

3.11.8.2 The deposition of concrete should run continuously until it has been brought to the required height. The top surface shall always be kept as nearly level as possible to prevent formation of seams.

3.11.9 **FINISHING**:

3.11.9.1.1.1 Immediately after the removal of forms, all exposed bars or bolts passing through R.C.C. member and used for shuttering or any other purpose shall be cut inside the R.C.C. member to a depth of at least 25 mm below the surface of the concrete and the resulting holes be closed by cement mortar.

3.11.9.1.1.2 All construction and expansion joints in the completed works shall be left carefully tooled and free from any mortar and concrete. Expansion joint filler shall be left exposed for its full length with clean and true edges.

3.11.9.1.1.3 If in the opinion of the of the Engineer, the pockets/honeycomb in the structure are found to such an extent or character as to affect the strength of the structure materially or endanger the life to reinforcement he may declare such concrete defective and order for its removal and replacement at the expense of the Contractor.

3.11.10 **CURING**:

All concrete shall be protected immediately after compaction and during hardening from harmful effects of rain, running water, sunshine, frost, driving winds, shocks, vibration, traffic and rapid temperature changes. All exposed faces of concrete shall be kept continuously wet by applying water or covering with wet sacking, hessian etc. for a period of not less than 14 days from the date of deposition.

3.11.11 CONSTRUCTION **JOINTS**:

3.11.11.1.1 All construction joints whether, horizontal or vertical shall be at predetermined position according to approved drawing or as directed by the Engineer. Prior to commencement of fresh concreting over any construction joint which has set but not hardened, the removal of laitance and roughening shall be done by wire brushing and washing and care shall be taken to avoid dislodgement of coarse aggregates.

3.11.11.2 At construction joints where the concrete has set hard, any skin or laitance shall be thoroughly hacked, swept cleaned and washed with clean fresh water. The surplus water shall be removed immediately before depositing fresh concrete. The neat cement grout shall be followed by a 13 mm thick layer of cement mortar of same proportion as in concrete and concreting resumed immediately thereafter. The first batch of fresh concrete shall be forced hard on to the mortar layer and the set faces, angles and corners by means of compacting tools, vibrations, etc and the damping effect on vibration in such position shall be allowed for.

3.11.11.3 Construction joints shall be avoided as far as practicable in case of structures, especially at tensile zones, where unavoidable, concreting shall be carried out continuously upto such joints which shall preferably be transverse to the line of main compression. However, in all cases, the positions of construction joints shall be predetermined and got approved by the Engineer.

3.11.12 MEASUREMENT FOR PAYMENT

The work of cement concrete shall be measured in cubic meters. The volume occupied by reinforcement shall not be deducted in reinforced concrete.

3.11.13 RATE FOR CONCRETE WORK

The unit rate for concrete work shall be quoted to include the cost of all materials including admixtures, if any (if the situation so warrants the contractor shall use the plasticizer for which nothing extra will be paid), except cement and reinforcement steel, which will be paid separately under Sch.-'C-I & C-II', labour, tools and construction plants required for proper mixing, transporting, placing in position, vibrating and compacting, finishing, curing and cost of all form work including erection and removal and all other incidental expenses for producing concrete of required strength to complete the structure or its components as per approved drawings and according to these specifications complete in all respects to the satisfaction of the Engineer.

3.12 **REINFORCEMENT**:

3.12.1 All reinforcements shall be cleaned thoroughly by removing loose scales, oil, grease or other deleterious materials. The contractor shall obtain the approval of the Engineer or his representative to the reinforcement when fixed in position before any concrete is deposited in the forms.

3.12.2.1.1 Bars shall be bent cold or straightened in a manner to the satisfaction of the Engineer or his representative. Bars bent during transport or handling shall be straightened before using on work, they shall not be heated to facilitate bending.

3.12.2.2 **WELDING**:-

As per relevant IRS Specification.

3.12.3 **PLACING AND MAINTENANCE OF REINFORCEMENT IN POSITION**:

3.12.3.1 All reinforcement bars shall be cut and standard hooks made at ends and accurately placed in position as shown on the approved drawings and shall be securely held in position before and during concreting by annealed binding wire (as specified in Clause 3.1) and by using dense concreting spacer blocks prepared and cured as directed by the Engineer or his representative, or metal chairs, metal spacers supporting wires or other

approved device at sufficiently close intervals. Bars will not be allowed to sag between supports nor displaced during concreting or any other operation over the work. Metal supports shall not extend to the surface of the concrete, except where shown on the drawings. Pieces of broken stone or brick and wooden blocks shall not be used.

3.12.3.2 As far as possible, bars of full length shall be used. When bars are required or permitted to be lapped by the Engineer or his representative, the overlaps shall be staggered for different bars and located at points, along the span where neither shear not bending moment is maximum. The concrete cover measured over the reinforcing bars shall be in accordance with the approved drawings or IS Code provisions.

3.12.4 **MEASUREMENT FOR PAYMENT**

Reinforcement shall be measured in length (running meter) separately for different diameters as actually used in the work including overlaps, hooks at ends and excluding of chairs, supports as actually placed and incorporated in the work from the length so measured the weight of the reinforcements shall be calculated based on the standard unit weight.

3.12.5 **RATE FOR RE-INFORCEMENT WORK**:

3.12.5.1.1 The unit rate for reinforcement work shall be quoted so as to include its transportation and storing at Contractor's worksite, bending, fixing and binding in position by Contractor's own labour and equipment as per approved drawings and as directed by the Engineer. It shall also include the cost of annealed binding wire as per Clause 3.1 and all other tools and equipments. Rate quoted by the tenderer should include provision for wastage in cutting, providing spacers, separators and hanger bars etc. and no extra payments shall be made towards the same.

10.0 **AESTHETIC REQUIREMENT**:

The contractor shall make every effort to ensure that all part of the Bridge sub- structure are of good appearance and aesthetically acceptable. The external surface finish shall be suited to these requirements and be in harmony with nature and depositing of the materials and surroundings.

Proper finishing to all chamfers and no sign, surface treatment to exposed surfaces, caulking of gaps and joints, etc. shall have to be done as per the requirements as specified elsewhere and to the satisfaction of the Engineer.

11.0 **TEMPORARY STRUCTURE** :

The contractor(s) will be required to submit any designs/drawings for approval of the Railway for such temporary structures, which are connected with the permanent work.

East Central Railway
Office of the Chief Administrative Officer (Con)
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Special conditions and the specification for Reinforcement Steel

1.1 Steel

Steel used in the works shall be thermo mechanically treated (TMT)/HYSD steel bars conforming to IS: 1786 (latest revision) usable in Earthquake Zone IV & V also. The steel shall be procured only from those firms, which are Established, Reliable, Indigenous & Primary Producers of Steel, having Integrated Steel Plants (ISP), using iron ore as the basic raw material and having in-house iron Rolling facilities, followed by production of liquid steel and crude steel, as per Ministry Of Steel's guidelines.

All reinforcement work shall be executed in conformity with the drawings supplied and instructions given by the Engineer and shall generally be carried out in accordance with the relevant Indian Standard Specifications (IS: 2502).

1.2 Inspection & Testing

Every bar shall be inspected before assembling on the works and any defective, brittle, excessively rusted or burnt bars shall be removed. Cracked ends of bars shall be cut out.

Physical Test	IS: 2062, IS: 432	(I)	Up to 10mm dia One sample per 25 MT or part thereof
		(II)	Above 10mm dia One sample per 40 MT or part thereof

1.3 Lapping & Welding

As far as possible, bars of the maximum length available shall be used. Laps shown on drawings or otherwise specified by the Engineer should be used. In case the Contractor wishes to use shorter bars, laps shall be provided at the Contractor's cost in the manner and at the locations approved by the Engineer. In any case laps provided in addition to laps shown on the bar bending schedule to be issued by Railway will not be measured for payment purpose.

ii) As and when necessary, welded laps shall be provided as specified by the Engineer.

1.4 Spacing, Supporting & Cleaning

i) All reinforcements shall be placed and maintained in the positions shown on the drawings.
ii) The Contractor shall provide approved types of supports as specified on the drawings for maintaining the top bars of the slab in position during concreting. All cover blocks shall be of concrete (not sand cement mortar) and of the same strength as that of the surrounding concrete and properly compacted and vibrated on a vibrating table.
They shall be cured for a minimum period of 21 days before they are used in the works.
iii) 18 SWG. G.I. wire shall be used as binding wire. All frames crossing one another shall be bound with this wire twisted tight to make the skeleton on network rigid so that the reinforcement is not displaced during placing of concrete.
iv) Bars must be cleaned before concreting commences of all scale, rust or partially set concrete which may have been deposited there during placing of a previous lift of concrete.

The bars shall be cleaned with dry gunny bags if they are coated lightly with rust or other impurities. On no account shall the bars be oiled or painted nor shall mould oil used on the formwork be allowed to come in contact with the bars. Cement wash to bars will not be permitted.

1.5 Welding

i) Wherever specified, all welding shall be carried out in accordance with IS: 2571. Only qualified welders shall be permitted to carry out such welding.

ii) For cold twisted reinforcement, welding operations must be controlled to prevent a supply of large amounts of heat larger than what can be dissipated. The extreme non-twisted end portion shall be cut off before welding. Electrodes with rutile coating should be used.

iii) The welding procedure shall be approved by the Engineer and tests shall be made to prove the soundness of the welded connection.

1.6 Measurement of Payment

Reinforcement shall be measured in length for different diameters as actually used in the works including overlaps as shown in the bar bending schedule to be issued by Railway but excluding other overlaps if provided by the contractor in addition to the overlaps shown on the bar bending schedule of Railway and excluding overweight. From the length so measured, the weight of reinforcement shall be calculated in tones on the basis of standard weights as per IS: 1732. Lengths shall include hooks at ends and overlap as shown in the bar bending schedule to be issued by Railway. Wastage, additional overlaps, coupling, welded joints, spacer bars, chairs etc. and annealed G.I. wire (18 SWG) for binding shall not be measured and cost of these items shall be deemed to be included in the rates of RCC & PSC work.

The contract unit rate for RCC and PSC work shall include cost of bending, placing, binding, welding if required and fixing in position of reinforcement as shown on the drawings and as directed by the Engineer. It shall also include cost of all devices for keeping reinforcement in approved position, cost of jointing as per approved method and all wastage, overlaps and spacer bars.

Witness

1. **Signature of Tenderer**

2. **Dated:_____**

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendru ghat, Patna- 800004

Special conditions and Specifications for Structural Concrete

1.1 CEMENT:

(i) Ordinary Portland cement of 43 grade conforming to IS: 12269/ PPC as per IS1489/ PSC as per IS 455 as approvable shall be used for all permanent structures.

(ii) C3A content of OPC should be between 5 to 8 percent.

(iii) Cement of reputed brand viz. Gujarat Ambuja, L&T, ACC, Birla Super JP Cement is to be used. If contractor proposes to use cement of any other brand, the same shall be got approved by Railway duly submitting test certificate and manufacturer's specification.

1.2 FINE AGGREGATES (SAND):

(i) Creek/ Marine sand shall not be used in permanent work.

(ii) Sand, if found too coarse, shall be suitably blended with finer sand obtained from approved sources to obtain the desired grading. The provision of two types of sand, their stacking separately and their mixing in the specified proportions shall be at the contractor's cost.
The sand shall not contain silt, shale, clay and other week particles more than a total of 3% by weight.

(iii) The grading of the sand shall conform to IS: 2386.
The sand shall be screened on a 4.75mm size screen to eliminate over size particles.
The sand shall conform to IS:383.
The sand shall be washed in screw type mechanical washers in potable water top remove excess silt, clay and chlorides. The screening and washing of sand shall be completed at least one day before using it in concrete.
The washed sand shall be stored on a sloping platform and in such a manner as to avoid contamination.

1.3 COARSE AGGREGATES:

(i) Coarse aggregates for the works shall be crushed stone conforming to IS: 383, obtained from approved sources. Only quarries having jaw crushes with choke feeding arrangements producing aggregates of nearly cubical shape shall be approved.

(ii) Coarse aggregate containing flat or flaky pieces or mica shall be rejected.

(iii) The aggregates shall be subjected to tests in accordance with IS: 2386 as may be ordered by the Engineer.

(iv) Aggregate shall be stored in such a way as to prevent segregation of sizes and avoid contamination with fines and other undesirable material.

(v) Specific gravity of C.A should be more than 2.65.

1.4 WATER:

(i) Potable water from supply of proper quality should be used.

(ii) The permissible limits for solids shall be as follows:

	Permissible limits (Max.)
Organic	200 mg/ lit
Inorganic	3000 mg/ lit
Sulphates (SO_4)	500 mg/ lit
Chlorides (Cl)	300 mg/ lit
Suspended matter	2000 mg/ lit
Alkalis	10 mg/ lit
Acidic material	2 mg/ lit

(iii) The pH value shall not be less than 6.

1.5 CONCRETE ADMIXTURES:

1.5.1 GENERAL:

Concrete admixtures are proprietary items of manufacture and shall be obtained only from established manufactures with proven track record, quality assurance and full ledged laboratory facilities for the manufacture

and testing of concrete. Naphthalene or melamine based admixtures as approved by Railway only shall be used in the work. The admixture shall be non-air entraining type.
The contractor shall provide the following information concerning each admixture after obtaining the same from the manufacturer:

a) Normal dosage and detrimental effects, if any, of under dosage and over dosage.
b) The chemical names of the main ingredients in the admixtures.
c) The chloride content, if any, expressed as a percentage by the weight of the admixture.
d) Values of dry material content, ash content and relative density of the admixture which can be used for Uniformity Tests.
e) Whether or not the admixture leads to the entertainment of air when used as per the manufacturer's recommended dosage, and if so to what extent.
f) Where two or more admixtures are proposed to be used in any one mix, confirmation as to their compatibility.
g) There would be no increase in risk of corrosion of the reinforcement or other embodiments as a result of using the admixture.
h) Retardation achieved in initial setting time.

1.5.2 PHYSICAL AND CHEMICAL REQUIREMENTS:

Admixtures shall conform to the requirements of IS: 9103. In addition, the following conditions shall be satisfied.

a) "Plasticizers" and "Super- Plasticizers" shall meet the requirements indicated for "Water reducing Admixture".
b) The air content of freshly mixed concrete in accordance with the pressure method given in IS: 1199 shall not be more than 1 percent higher than that of the corresponding control mix.
c) There shall be no chloride content in admixture when tested in accordance with IS: 6925.
d) Uniformity tests on the admixtures are essential to compare qualitatively the composition of different samples taken from batch to batch or from the same batch at different times.
e) All tests relating to the concretes admixtures shall be conducted periodically at an independent laboratory and compared with the data given by the manufacturer.
f) While Qualifying the admixture the infra-red spectrograph plot should be given. Each batch of the supply should be tested for I.R. Spectrograph and prove the consistency of supply.

1.6 Storage of Materials:

1.6.1 General:

All materials may be stored at proper places so as to prevent their deterioration or intrusion by foreign matter and to ensure their satisfactory quality and fitness for the work. The storage space must also permit easy inspection, removal and re storage of the materials. All such materials even though stored in approved Godown/ places, must be subjected to acceptance test prior to their immediate use.

1.6.2 Aggregates:

Aggregate stockpiles may be made on ground that is denuded of vegetation, is hard and well drained. If necessary, the ground shall be covered with 50 mm planks.
Coarse aggregates, unless otherwise agreed by the Engineer in writing, shall be delivered to the site in separate sizes (2 sizes when nominal size is 25mm or less and 3 sizes when the nominal size is 32mm or more).
Aggregates placed directly on the ground shall be removed from the stockpile above 30 cm of the ground until the final cleaning up of the work, and then only the clean aggregate will be permitted to be used. In the case of fine aggregates, these shall be deposited at the mixing site not less than 8 hours before use and shall have been tested and approved by the Engineer.

1.6.3 Cement:

Cement shall be transported, handled and stored on the site in such a manner as to avoid deterioration or contamination. Cement shall be stored above ground level in perfectly dry and water-tight sheds and shall be stacked not more than eight bags high. Wherever bulk storage containers are used their capacity should be sufficient to cater to the requirement at site and should be cleaned at least once every 3 months. Cement older than 3 months from the date of manufacture shall not be used.

Each consignment shall be stored separately so that it may be readily identified and inspected and cement shall be used in the sequence in which it is delivered at site. Any consignment or part of a consignment of cement

which had deteriorated in any way, during storage, shall not be used in the works and shall be removed from the site by the Contractor without charge to the Employer.

The Contractor shall prepare and maintain proper records on site in respect of delivery, handling, storage and use of cement and these records shall be available for inspection by the Engineer at all times.

The Contractor shall make a monthly return to the Engineer on the date corresponding to the interim certificate date, showing the quantities of cement received and issued during the month and in stock at the end of the month.

Testing:

A sample shall be tested from every batch of cement delivered on site or once for every 1000 bags whichever is more frequent. Tests shall be carried out for fineness, initial and final setting time, and compressive strength (IS: 4031) and the result approved by the Engineer before use of the cement in permanent works. Samples shall be taken immediately on receipt of cement at site. The methods and procedure of sampling shall be in accordance with IS: 3535. The Engineer may specify other forms of sampling and tests including chemical analysis, (IS: 4032) if in his opinion the cement is of doubtful quality; the costs of such additional tests shall be borne by the contractor.

1.6.4 Reinforcement/ Untensioned Steel:

The steel shall be procured only from those firms, which are Established, Reliable, Indigenous & Primary Producers of Steel, having Integrated Steel Plants (ISP), using iron ore as the basic raw material and having in-house iron Rolling facilities, followed by production of liquid steel and crude steel, as per Ministry Of Steel's guidelines. The reinforcement bars, when delivered on the job, shall be stored above the surface of the ground upon platforms, skids or other supports, and shall be protected from mechanical injury and from deterioration by exposure.

Inspection:

Every bar shall be inspected before assembling on the works and any defective, brittle, excessively rusted or burnt bars shall be removed. Cracked ends of bars shall be cut out.

1.7 Special Measures:

(i) Minimum cement content & maximum water cement ratio shall be 300 kg/ cum & 0.5 respectively for RCC and 400 kg/ cum and 0.4 respectively for PSC. The cement content shall not exceed 450 kg/ cum as per IS 456.

(ii) The total chloride content of all constituents of concrete as a percentage of cement in mix shall not exceed 0.06 percent for (as cl) PSC members & 0.15 percent of RCC members.

(iii) Sulphate soluble (as SO_3) shall not exceed 4% by weight of cement in the concrete.

(iv) Permeability test (Mandatory):

The concrete should pass the following test if it is properly compacted and is not considered permeable.

i) Prepare a cylindrical test specimen 150mm dia and 160mm high.

ii) After 28 days of curing, the test specimen is fitted in a machine such that the specimen can be placed in water under pressure upto 7 bars.

iii) At first a pressure of one bar is applied for 48 hours, followed by 3 bars for 24 hours and 7 bars for next 24 hours.

iv) After the passage of the above period, the specimen is taken out and split in the middle by compression applied on two round bars on opposite sides above and below.

v) The water penetration in the broken core is to be measured with a scale and the depth of penetration assessed in mm (max. permissible limit 25mm).

1.8 Design Mix:

1.8.1 For all items of concrete only design mix shall be used. Prior to the start of construction, the Contractor shall design the mix and submit to the Engineer for approval, the proportions of materials, including admixtures to be used. Water-reducing admixtures (including plasticizers or super-plasticizers) may be used at the Contractor's option, subject to the approval of the Engineer.

1.8.2 Requirements of Consistency:

The mix shall have the consistency which will allow proper placement and consolidation in the required position. Every attempt shall be made to obtain uniform consistency.

The optimum consistency for various types of structures shall be as indicated in Table-1, or as directed by the Engineer. The clump of concrete shall be checked as per IS: 516.

Table 1

Sl. No.	Type	Slump (mm)
1	RCC structures with widely spaced reinforcement, e.g. solid columns, piers, abutments, footings, etc.	40 – 50
2	RCC structures with fair degree of congestion of reinforcement, e.g. pier and abutment caps.	50 – 75
3	PSC structures`	75 – 125

1.8.3 Requirements for Designed Mixes:

B.7 Trial Mixes: (For Strength)

i. The Contractor entirely responsible for the design of the concrete mixes. The design is however to be approved by the Engineer. At least 8 weeks before commencing any concreting in the works, the contractors shall make trial mixes using samples of coarse aggregates, sand, water super plasticizer and cement, typical of those to be used in the works, and which have been tested in an approved laboratory. A clean dry mixer shall be used and the first batch discarded.

ii. The cement content for different grades of concrete and the required average strengths at 28 days for which the mixes shall be designed are specified below:

Table-1

of concrete (mm)	teristic strength (f'ck) at 28 days	rget mean h f'cmMpa 28 days	ement content kg/ m^3 for RCC	ement content kg/ m^3 for PSC	cement Ratio (Max.) for RCC	cement Ratio (Max.) for PSC	m Slump at placing point
M20	20	29	300	400	0.5	0.4	150
M35	35	44	300	400	0.5	0.4	170
M45	45	54	300	400	0.5	0.4	100

N.S.: Use of approved super plasticizer for Plain Cement Concrete and Reinforced/ precast-cast-in-situ cement concrete is mandatory at contractor's cost.

The mixes are designed to yield target mean strengths (f'cm) greater than the corresponding specified characteristics strengths (f'ck) as indicated in above Table. The difference between f'cm and f'ck is called the "Current Margin". The value of the current margin has been set at 9 Mpa for all grades of concrete. The concrete mixes shall be designed on the basis of required strength, desired workability, the maximum size of aggregate and also the various grades of cement as specified in IS: 10262-1982, Clause 3.1.1 Accordingly the required cement content shall be ascertained. The contractor may be allowed to use either approved Super plasticizers or increased cement content to achieve the required strengths at his own cost.

iii. For each grade a total of 18 cubes shall be made. Of these 18 cubes made, no more than 6 may be made on any day and further, of the 6 cubes made in one day not more than 2 cubes may be made from any single batch. 9 of these cubes, each representing a different batch of concrete shall be tested at the age of 7 days and the remaining 9 cubes shall be tested the age of 28 days. The making of cubes, their curing, storing, transporting and testing shall be in accordance with Indian Standards IS: 516. The test shall be carried out in a laboratory approved by the Engineer.

iv. If the average strength of the concrete cubes falls below the required target mean strength (f'cm) fresh preliminary mixes for that grade shall be made as before, until the trial mixes yield cubes of compressive strength at 28 days greater than the required average target mean strength (f'cm) at that age.

v. Whenever there is a significant change in the quality of any of the ingredients for concrete, the Engineer may at his discretion order the carrying out of fresh trial mixes. All costs for trial mixes and tests shall be to the Contractor's account and held to be included in the contract rates.

vi. Before commencing the works the Contractors shall submit to the Engineer for approval full details of the preliminary trial mixes and tests.

1.8.4. The Contractor shall carry out trial casting of a mock-up of half of girder length to establish the correctness of grading aggregates, suitability of formwork, of admixtures proposed, suitability of mould oil proposed to be used on formwork, to prevent surface blemishes etc.

1.8.5 When the proportions of a concrete mix have been approved by the Engineer, the contractor shall not vary the quality or source of the materials or the mix without the written approval of the Engineer.

1.8.6 After some test results if it is found that standard deviation of strength of cubes is uniform and is less than 5 mix design may be revised as per IS 456 & IS 10262.

1.8.7 Size of Coarse Aggregate:

The size (maximum nominal) of coarse aggregates for concrete to be used in various components shall be given as Table-3.

Table-3

	Components	Max. Nominal Size of Coarse Aggregate
(i)	Nominal mix	40/20
(ii)	RCC solid type piers and abutments	40/ 20
(iii)	All other RCC work	20

The proportions of the various individual size of aggregates shall be so adjusted that the grading procedures densest mix and the grading curve corresponds to the maximum nominal size adopted for the concrete mix.

1.8.8 Equipment:

Unless specified otherwise, equipment for production, transportation and compaction of concrete shall be as under:

a) For Production of Concrete Fully automatic Concrete batching and mixing plant with minimum capacity of 25 cum per hour and total no. of batching and mixing plants should not be more than four nos.

All measuring devices of the equipment shall be maintained in a clean and serviceable condition. Its accuracy shall be checked over the range in use, when set up at each site and thereafter periodically as directed by the Engineer.

b) For Concrete Transportation — depending upon actual requirement
   - i) Concrete dumpers
   - ii) Powered hoists — minimum 2 ton capacity
   - iii) Chutes — minimum 0.5 ton capacity
   - iv) Buckers handled by cranes
   - v) Transit truck mixer
   - vi) Concrete pump
   - vii) Concrete distributor booms
   - viii) Belt conveyor
   - ix) Cranes with skips
   - x) Tremies
   - xi) Air compressor
   - xii) Any other equipment to suit the working condition

c) For Compaction of Concrete
   - i) Internal vibrators — Size 25mm to 70mm
   - ii) Form vibrators — minimum 500 watts
   - iii) Screed vibrators — full width of carriageway (up to two lanes)

d) Adequate standby arrangement should be available for all equipment.

1.8.9 MIXING CONCRETE:

Concrete shall be mixed either in a concrete mixer or in a batching and mixing plant as per these specifications or as directed by Engineer in charge. Hand mixing shall not be permitted. The mixer or the plant shall be at an 0000approved location considering the properties of the mixes and the transportation arrangements available with the Contractor. The mixer or the plant shall be approved by the Engineer.

Mixing shall be continued till materials are uniformly distributed and a uniform color of the entire mass is obtained, and each individual particle of the coarse aggregate shows complete coating of mortar containing its proportionate amount of cement, preferably for 2 minutes.

Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch. Unless otherwise agreed to by the Engineer, the first batch of concrete from the mixer shall contain only two thirds of the normal quantity of coarse aggregate. Mixing plant shall be thoroughly cleaned before changing from one type of mix to another.

1.8.10 Transporting, Placing and Compaction of Concrete:

The method of transporting and placing concrete shall be approved by the Engineer. Concrete shall be transported and placed as near as practicable to its final position, so that no contamination, segregation or loss of its constituent materials takes place. Concrete shall not be freely dropped into place from a height exceeding 1.5 meters.

When concrete is conveyed by chute, the plant shall be of such size and design as to ensure practically continuous flow. Slope of the chute shall be so adjusted that the concrete flows without the use of excessive quantity of water and without any segregation of its ingredients. The delivery end of the chute shall be as close as possible to the point of deposit. The chute shall be thoroughly flushed with water before and after each working period and the water used for this purpose shall be discharged outside the formwork.

All formwork and reinforcement contained in it shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete.

No concrete shall be placed in any part of the structure until approval of the Engineer has been obtained.

If concreting is not started within 24 hours of the approval being given, it shall have to be obtained again from the Engineer. Concreting then shall proceed continuously over the area between the construction joints. Fresh concrete shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction joint is formed.

Except where otherwise agreed to by the Engineer, concrete shall be deposited in horizontal layers to a compacted depth of not more than 450mm.

Concrete when deposited shall have a temperature of not more than $40^{O}C$. It shall be compacted in its final position within 30 minutes of its discharge from the mixer, unless carried in properly designed agitators, operating continuously, when this time shall be within 1 hour of the addition of cement to the mix and within 30 minutes of its discharge from the agitator. It may be necessary above are unacceptable. In all such matters, the Engineer's decision shall be final.

Concrete shall be thoroughly compacted by vibration or other means during placing and worked around the reinforcement, tendons or duct formers, embedded fixtures and into corners of the formwork to produce a dense homogenous void-free mass having the required surface finish. When vibrators are used, vibration shall be done continuously during the placing of each batch of concrete until the expulsion of air has practically ceased and in a manner that does not promote segregation. Over vibration shall be avoided to minimize the risk of forming a weak surface layer. When external vibrators are used, the design of formwork and disposition of vibrator shall be such as to ensure efficient compaction and to avoid surface blemished. Vibrations shall not be applied through reinforcement and where vibrators of immersion type are used, contact with reinforcement and all inserts like ducts etc., shall be avoided. The internal vibrators shall be inserted in an orderly manner and the distance between insertions should be about one and half times the radius of the area visibly affected by vibration. Additional vibrators in serviceable condition shall be kept at site so that they can be used in the event of breakdowns.

Mechanical vibrators used shall comply with IS: 2505, IS: 2506, IS: 2514 and IS: 4656.

1.8.11 Construction Joints:

A PSC girder shall be cast in single pour of concrete without any cold joints or construction joints. Even for other bridge structures, construction joints shall be avoided as far as possible and in no case the locations of such joints shall be changed or increased from those shown on the drawings, except with express approval of the Engineer. The joints shall be provided in a direction perpendicular to the member axis. Sequencing of concrete placement should be organized in such a way that cold joints are totally eliminated. The sequence of concreting shall be submitted for approval of Railway prior to concreting of the structural element.

All construction joints, if approved shall be treated with epoxy compound after preparing the surface with V-notch, cleaning etc. complete to the satisfaction of the Engineer.

1.8.12 Concreting Under Water:

When it is necessary to deposit concrete under water, the methods, equipment, materials and proportions of mix to be used shall be got approved from the Engineer before any work is started. Concrete shall contain 10% more cement than that required for the same mix placed in the dry.

Coffer dams shall be sufficiently tight to ensure still water conditions, if practicable, and in any case to reduce the flow of water to less than 3 meters per minute through the space into which concrete is to be deposited. Coffer dams in still water shall be sufficiently tight to prevent loss of mortar through the joints in the walls. Pumping of water shall not be done while concrete is being placed or until 24 hours thereafter. To minimize the formation of laitance, great care shall be exercised not to disturb the concrete as far as possible while it is being

deposited.

All under-water concreting shall be carried out by tremie method only, using tremie of appropriate diameter. The number and spacing of the tremie's should be worked out to ensure proper concreting. The tremie concreting when started should continue without interruption for the full height of the member being concreted. The concrete production and placement equipment should be sufficient to enable the underwater concrete to be completed uninterrupted within the stipulated time. Necessary stand-by equipment should be available for emergency situation. The top section of the tremie shall have a hopper large enough to hold one full batch of the mix or the entire contents of the transporting bucket as the case may be. The tremie pipe shall not be less than 200mm in diameter and shall be large enough to allow a free flow of concrete and strong enough to withstand the external pressure of the water in which it is suspended, even if a partial vacuum develops inside the pipe. Preferably, flanged steel pipe of adequate strength for the job shall be used. A separate lifting device shall be provided for each tremie pipe with its hopper at the upper end. Unless the lower end of the pipe is equipped with an approved automatic check valve, the upper end of the pipe shall be plugged with a wadding of gunny sacking or other approved material before delivering the concrete to the tremie pipe through the hopper, so that when the concrete is forced down from the hopper to the pipe, it will force the plug (and along with it any water in the pipe) down the pipe and out of the bottom end, thus establishing a continuous stream of concrete.

It will be necessary to raise slowly the tremie in order to allow a uniform flow of concrete, but it shall not be emptied so that water is not allowed to enter above the concrete in the pipe. At all times after placing of concrete is started and until all the required quantity has been placed. The lower end of the tremie pipe shall be kept below the surface of the plastic concrete. This will cause the concrete to build up from below instead of flowing out over the surface and thus avoid formation of layers of laitance. If the charge in the tremie is lost while depositing, the tremie shall be raised above the concrete surface and unless sealed by a check valve, it shall be replugged at the top end, as at the beginning, before refilling for depositing further concrete.

1.8.12 Protection and Curing:

Concreting operations shall not commence until adequate arrangements for concrete curing have been made by the Contractor.

Curing and protection of concrete shall start immediately after compaction the concrete to protect it from:

a) Premature drying out particularly by solar radiation and wind
b) High internal thermal gradients
c) Leaching out by rain and flowing water
d) Rapid cooling during the first few days after placing
e) Low temperature
f) Vibration and impact which may disrupt the concrete and interfere with its bond to the reinforcement.

Where members are of considerable size and length, with high cement content accelerated curing methods maybe applied, as approved by the Engineer.

1.8.13.1 Water Curing

Water for curing shall be as specified suitable for concreting.

Exposed surface of concrete shall be kept continuously in a damp or wet condition by ponding or by covering with a layer of sacks, canvas, Hessian or similar materials and shall be kept constantly wet for a period of not less than 28 days from the date of placing of concrete.

1.8.13.2 Curing compound

Curing compound shall normally not be used. If proposed to be used, they can be permitted at selected locations, at the approval of the Engineer.

1.8.14 Finishing

Immediately after removal of forms, exposed bars or bolt, if any, shall be cut inside the concrete member to a depth of at least 50mm below the surface of the concrete and the resulting holes filled with cement mortar of dry pack consistency.

All construction and expansion joints in the completed work shall be left carefully tooled and free from any mortar and concrete. Expansion joint filler shall be left exposed for its full length with clean and true edges.

The finished surfaces of concrete after removal of formwork should be such that no touching up is required. All fins caused by form joints, if any, shall be ground using electric surface grinder.

Immediately on removal of forms, the concrete work shall be examined by the Engineer before any defects are made good.

a) The work that has sagged or contains honeycombing to an extent detrimental to structural safety or architectural appearance shall be rejected.

b) Surface defect of a minor nature may be accepted. On acceptance of such work by the Engineer, the same shall be rectified as directed by Engineer.

1.8.15 Tests and Standards of Acceptance

1.8.15.1 Concrete shall conform to the surface finish and tolerance as prescribed in these specifications for respective components.

1.8.15.2 Random sampling and lot by lot of acceptance inspection shall be made for the 28 days cube strength of concrete.

1.8.15.3 Concrete under acceptance shall be notionally divided into lots for the purpose of sampling, before commencement of work. The delimitation of lots shall be determined by the following:

a) No individual lot shall be more than 30 cum in volume.

ii) At least three cube forming an item of the sample representing the lot shall be taken from concrete of the same grade and mix proportions cast on any day.

iii) Different grades of mixes of concrete shall be divided into separate lots.

iv) Concrete of a lot shall be used in the same identifiable component of the bridge.

1.8.15.4 Sampling and testing

i) Concrete for making 3 test cubes shall be taken from a batch of concrete at point of delivery into construction, according to procedure laid down in IS: 1199.

ii) A random sampling procedure to ensure that each of the concrete batches forming the lot under acceptance inspection has equal chance of being chosen for taking cubes shall be adopted.

iii) 150 mm cubes shall be made, cured and tested at the age of 28 days for compressive strength in accordance with IS: 516. The 28 day test strength result for each cube shall form an item of the sample.

iv) Frequency of testing for permeability: 2 sets of 3 samples for per girder.

1.8.15.5 Test Specimen and sample strength:

Three test specimens shall be made from each sample for testing at 28 day. Additional 3 cubes may be required for various purposes such as to determine the strength of concrete at 7 days for any other purpose. The test strength of the sample shall be the average of the strength of 3 cubes. The individual variation should not be more than ±15 percent of average.

1.8.15.6 Frequency:

The minimum frequency of sampling of concrete of each grade shall be in accordance with Table-4.

Table-4

Quantity of Concrete in work, m^3	No. of Samples
1 – 5	1
6 – 15	2
16 – 30	3
16 – 30	3
31 – 50	4
51 and above	4 plus one additional sample for each additional 50 m^3 or part thereof

At least one sample shall be taken from each shift of work.

1.8.16 Acceptance criteria / As per IS 456/2000

1. Whenever a mix is redesigned due to a change in the quality of aggregate or cement or for any other reason, it shall be considered a new mix and initially subject to the acceptability criteria above.
2. If the concrete produced at site does not satisfy the above strength requirements, the Engineer will reserve the right to require the contractor to improve the methods of batching, the quality of the ingredients and redesign the mix with increased cement content, if necessary. The Contractor shall not be entitled to claim any extra cost for the extra cement used for the modifications stipulated by the Engineer for fulfilling the strength requirement specified.

3. It is the complete responsibility of the contractor to redesign the concrete mixes by approved standard methods and to produce the reinforced concrete conforming to the specification and the strength requirements approved by the Engineer. It is expected that the contractor will have competent staff to carry out this work.
4. As frequently as the Engineer may require, testing shall be carried out in the field for:
   (i) Moisture content and absorption and density of sand and aggregate.
   (ii) Silt content of sand.
   (iii) Grading of sand and aggregates.
   (iv) Slump test of concrete.
   (v) Concrete cube test.

The Contractor shall provide and maintain on site at all times, until the works are completed, equipment and staff required for carrying out these tests. The Contractor shall grant the Engineer or his representative full access to his laboratory at all times and shall produce on demand complete records of all tests carried out on site.

Tests such as Permeability test for concrete as per DIN 1048 (Part-I), quality of Plasticizer, and other lab tests shall be undertaken through approved / accredited labs as agreed by Engineer.

Before concreting commences on any section of the works the Contractor shall obtain approval of the Engineer or his representative as regards the formworks and reinforcements conforming with the drawings. He shall also indicate to the Engineer in writing and obtain his approval for positions of construction joints.

1.8.17 Cracks

(i) If cracks develop in concrete construction, which in the opinion of the Engineer may be detrimental to the strength of the construction, the Contractor at his own expense shall test the construction item. If under such test loads the cracks develop further, the Contractor shall dismantle the construction, carry away the debris, replace the construction and carry out all consequential work thereto.

(ii) If any cracks develop in the concrete construction, which in the opinion of the Engineer, are not detrimental to the stability of the construction, the Contractor at his own expense shall grout the cracks with polymer cement grout of approved quality and also at his own expense and risk shall make good to the satisfaction of the Engineer, which in the opinion of the Engineer has suffered damage either in appearance or stability owing to such cracks. The Engineer's decision as to the extent of the liability of the Contractor in the above matter shall be final and binding.

1.8.18 Defective Concrete:

Should any concrete be found honeycombed or in any way defective, which may be suspected to affect the performance of the structure, shall be rejected outright. However, some surface defects like minor honeycombing etc. not affecting the structural properties shall on the instruction of the Engineer repaired as per the approved procedure.

1.8.19 TOLERANCE IN CONCRETE ELEMENTS

1)	**Open Foundation**	
a)	Variation in dimensions	: +50mm – 10mm
b)	Misplacement from specified position on plan	: 15mm
c)	Surface irregularities measured with 3m straight edge	: 3mm
2)	**Substructure**	
a)	Variation in cross-sectional dimensions	: +10mm – 5mm
b)	Misplacement from specified position in plan	: 10mm
c)	Variations from plumb over full height	: 10mm
3)	**PSC Superstructure**	:
a)	Precast Concrete Superstructure	:
	Variation in cross-sectional dimensions	:
i)	Upto and including 2m	: ± 5mm
ii)	Over 2m	: ± 5mm
b)	Variation in length overall and length between	: Shall not exceed ±10mm or ±0.1

bearings		percent of the span length, whichever is lesser
c) Variation in overall depth or width	:	± 5mm

1.8.20 MEASUREMENT FOR PAYMENT

Structural concrete shall be measured in cubic meters as per actual volume. In reinforced or prestressed concrete, the volume occupied by reinforcement or prestressing cables and sheathing shall not be deducted. Payment may be made based on the dimensions as per the drawings if the structure is within prescribed tolerance.

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendrughat, Patna- 800004

SPECIAL CONDITIONS & SPECIFICATIONS FOR FABRICATION & ERECTION OF STEEL STRUCTURES

1. BOOKS OF REFERENCE:

(i) IR Specification for Fabrication of steel girder bridge & Locomotives turn tables-(fabrication specification) - SERIAL No. BI-2001 issued by RDSO
(ii) IS-800-1998.
(iii) All IS & IRS specifications mentioned in RDSO Booklet serial No. BI-2001
(iv) G.C.C. -2014 of East Central Railway
(v) Where any specification is in conflict with other standard the clauses of Fabrication & specification mentioned against Sl. No. (i) Above shall prevail.

2. DRAWING:

(i) Design drawing will be issued by Railway.
(ii) The detailed working/fabricating drawing as any be required shall be prepared by the contractor at his own cost and submitted for approval.
(iii) Detail launching/scheme/arrangement for erection of steel girder/structure shall be prepared by the contractor at his own cost and submitted to the Rly's for approval.

3. GUARANTEE AGAINST DEFECT:

The Tenderer will be required to give guarantee for a period of 12 months beyond the DOC/Extended DOC against any defect, that may develop either from bad materials supplied by the contractor or workmanship for which he may be held responsible.

4. INCLUSIVE PRICE:

(i) The cost of all painting, temporary erection and testing at Tenderer's workshop, packing and delivery at the site of work as specified in the schedule, is to be included in the price quoted on the tender.
(ii) Any fittings, accessories or apparatus which may not have been mentioned in the specification, but which are considered necessary for the execution of this work, are to be provided by the contractor without any extra payment. The work must be completed in all details.

5. MATERIALS/FABRICATION/WORKMANSHIP/ERECTION:

5.1 Fabrication workmanship and erection shall comply with RDSO fabrication specification Booklet Sl. No. B1-2001.

5.2 Materials specification - Steel should conform to IS - 2062 – Gr. B.

(i) Manufacturing - The whole work shall be representative of the highest class of workmanship. The greatest accuracy shall be observed in the design, manufacture and erection of every part of the work to ensure that all parts will fit accurately together on erection and similar parts shall be strictly inter changeable.

(ii) The contractor shall maintain steel tape of approved make for which he has obtained a certificate of accuracy from any National Test House or Govt. recognized institution competent to do so.

(iii) Rolled materials before being laid off or worked, must be made straight. If straightening or flattening is necessary it shall be done by method that will not damage the material. Sharp kinks and bents will be rejected.

(iv) Tolerance - the tolerance in fabrication shall be in accordance with as mentioned in - Appendix - II of RDSO Fabrication Specification B-1-2001.

(v) Fabrication records - the records of fabrication shall be maintained in the register as per format given in Appendix - 1 of RDSO Booklet B-1-2001.

(vi) Flattening and straightening - All steel materials, plates, bars and structures shall have straight edges, flat surfaces and be free from twist. If necessary, they shall be cold straightened of flattened by pressure before being worked or assembled unless they are required to be of curvilinear form. Pressure applied for straightening or flattening shall be such as it would not injure the material and adjacent surfaces of edges shall be in close contact or at uniform distance throughout.

(vii) Flattening or straightening under hot condition shall not be carried out unless authorized and approved by inspecting officer.

(viii) The tenderer may fabricate the steel work at his own workshop or at the site of the work as is convenient to him. If the fabrication is done in his own workshop, the transportation or the fabricated materials may be done by road or rail transport at his own cost. The tenderer must inspect the approach roads right from the workshop and should ensure that it would be possible for him to transport the materials by Road.

(ix) If the tenderer proposes to fabricate the steel at site, the transport of steel section may be done by the one of the methods mentioned above. Suitable site would be given to the tenderer to make temporary workshop free of cost, if available, but on completion of work, the site would be restored to normal condition.

(x) The responsibility of custody of the materials, in Tenderer's workshop or at site will remain with tenderer till the completion of work and then handed over to the railway.

6. Templates

The templates throughout the work shall be steel. The templates shall be used for making of cutting materials and as well as profile machining for girders of railway loading. Templates shall be used for drilling holes in steel structure other than girder of Railway. In case where actual materials from a bridge have been used as template for drilling similar pieces the inspecting officer will decide whether they are fit to be used as part of the finished structure.

7. Methods of Measurements for fabrication of structural steel work & erection.

7.1 Any steel work the weight of which differs by more than 2.5 % from the calculated weight determined from the normal weight of the section shall be liable to rejection.

7.1.1 Payment shall be made on the tendered weight to be calculated in accordance with the nominal weight of the sections as specified in final working drawing or based on theoretical weights given in producers hand books and using minimum overall dimensions, no deductions being made for skew cuts, holes or notches. Each gusset shall be on the dimensions of smallest enclosing rectangle.

An addition for welds and rivet heads should either be specified in the tender schedule or be made as follows:

(a) 3% in case of riveted or composite (riveted or welded) work.

(b) 1% in case of purely welded work.

7.2 Should the actual weight fall short of the calculated weight by more then 2.5 %, the material if accepted, will be paid for the actual weight only. Should the actual weight exceed the actual calculated weight, payment will be made for calculated weight only.

7.3 No separate payment shall be made for the field Rivets, Bolts, Nuts, wedges etc., and service accessories etc. required to complete erection at site with an allowance for waste etc.

7.4 In the event of a dispute arising as to the weight of a portion of steel work, a weighment shall be made in the presence of the inspecting officer.

8. RIVETS & RIVETING: Refer Fabrication specification Serial No. IRS-BI-2001 issued by RDSO-CL.23.1 to CL. 23.10 and appendix IV.

9. BOLTS, NUTS & WASHERS: Refer Fabrication specification Serial No. IRS-BI-2001 issued by RDSO - CL. 28-1 to CL 28.8

10. WELDING: Refer Fabrication specification Serial No. IRS-BI-2001 issued by RDSO-CL.26.1 to CL. 27.3 and appendix V.

11. ALTERATIONS IN THE WORK: Refer Fabrication specification Serial No. IRS-BI-2001 issued by RDSO-CL.53.1 to CL. 53.2 and appendix IV.

12. ERECTION & EQUIPMENT: Refer Fabrication specification Serial No. IRS-BI-2001 issued by RDSO-CL.21.1 to CL. 21.9 and appendix I

13. ERECTION OF OPEN WEB GIRDER SPAN: Refer Fabrication specification Serial No.IRS-BI-2001 issued by RDSO-CL.32.1 to CL. 34.8 and appendix III.

14. HANDLING & STORAGE OF MATERIAL

(a) The material, on receipt at site, shall be carefully unloaded, examined for defects, checked, sorted and stacked securely on a level bed out of danger from flood or tide, and out of contact with water of ground moisture.

(b) Any material found damaged or defective shall be stacked separately and the damage or defective portion be painted in distinctive color. Such material is to be dealt with under the orders of Engineer without delay.

(c) Care must be taken to see that parts at site are available in proper sections.

(d) The tenderer shall unload the materials promptly, on delivery from the wagon /BFR's otherwise he shall be responsible for demurrage charges.

15. BEARING & ANCHORAGE:

(ii) Bed plates and shoes shall be set level in exact position. They shall be given full and even bearing by setting them on a layer of cement mortar after blocking them accurately as directed by the Engineer.

(iii) The tenderer shall drill the holes and set the anchor bolts except where the bolts are already built into the concrete or masonry. The bolt shall be set accurately and fixed with Portland cement grout/epoxy grout completely filling the holes.

(iv) Before grouting, the holes should be cleaned very carefully as such there should not be any deposit of and or rubbish etc. No extra payment will be made for that.

16. TESTING: Refer IR Fabrication specification Serial No. IRS-BI-2001 issued by RDSO CL.35.1 to CL 35.3 and appendix IV.

17. CHECK TEST MADE AT CONTRACTOR: Refer IR Fabrication specification Serial No. IRS-BI-2001 issued by RDSO Cl.36.1 to CL 36.2 and appendix IV.

18. REMOVAL OF UNUSED MATERIALS ETC:

(a) The contractor shall take steps as desired by the Inspecting officer to ensure that rejected work is not resubmitted for inspection.

(b) On the completion of the work, the tenderer shall remove all his unused and surplus materials, paints and staging or other materials produced from his operation and shall leave the site in a clean and tidy condition.

19. INSURANCE:

The contractor shall be responsible for all damages injury caused by their work or workmen to person, animals of things or to the work of other Tenderers and he shall affect any insurance necessary and held the employer free from all responsibilities in the respect. This insurance must be affected jointly in the name of the contractors and the East Central Railway and the policy lodged with the Engineer. The contractor is liable in respect of all or any expenses arising from and such injury to person or property as afore-said and also in respect of any claim made in respect of any award or compensation or damage, resultant from such claim.

20. COMMENCEMENT OF THE ERECTION WORK AT SITE:

The contractor shall commence the erection work when and as soon as, but not until, he receives instructions from Dy. CE/Con in-charge to do so. On such order being given possession of site/authority shall be given to the contractor of such portion or portions of the site as the Dy. CE/Con may determine.

21. CONTRACTOR TO STUDY DRAWING & SPECIFICATION ETC AND HIS LIABILITY:

The tenderer shall be responsible for close scrutiny of the drawing supplied by the Railway for any discrepancies, error or omission in the drawings or other particulars indicated therein and shall approach the railway immediately for rectification such discrepancies, errors and omission. In any dimensions/figure upon a drawings or plan differ from those obtained by calling the drawing or plan, the dimensions as figured upon the drawings of plan shall be taken as correct.

22. CONTRACTOR TO SUBMIT HIS TIME TABLE:

(i)The contractor shall have to give to the Chief Administrative Officer/Con and Dy.CE. Con a monthly progress of work done during the month by the 4th day of the following month. He will also give to Chief Administrative Officer/Con through Dy.CE/Con the programme of coming month by 25 th of each month. The programme will be subject alteration at the discretion of the CAO/Con, who may discuss such modifications or alteration with the contractor if he (CAO/Con) considers it necessary.

(ii)The time for any date of compilation of the work as stipulated in chapter-II the Instructions to Tenderers shall be deemed to be the essence of the contract and the works must be completed in all respects not later than the date specified therein.

23. ANY DOUBTED POINTS TO BE REFERRED TO THE ACCEPTING AUTHORITY/ CAO/CON:

Should there be any doubt or obscurity as to anything to be done or not to be done by the contractor, or as to these instructions or as to any matter or thing, the contractor must set forth such doubt or obscurity in writing and submit the same to Chief Administrative Officer (Con) Only such reply as the said Chief Administrative Officer (Con) May be in writing given shall be taken as the authoritative interpretation of the point in doubt or obscurity. Neither the Engineer nor any servant in the employment of the Railway have or has any authority to make any representative explanations to the contractor as to the meaning of the form of contract, General Condition and specification, schedule of quantities and rates, drawing or other documents or as to the condition of the work or site of as to the works, or as to these instructions or as to any other matter or things.

24. LAND:

The Railway administration will at his discretion arrange free of cost land to the extent separable for contractor's office at sites, field workshop, stores, assembly and erection yard. Land required by the contractor for labour or staff accommodation. or other purpose will have to be arranged by him at his own cost.

25. TRANSPORTATION AND HANDLING OF MATERIAL &PLANT:

The contractor shall be responsible to arrange at his own cost wagons (if required) or transportation or materials and stores (other than those which are being arranged by the railway) required for the works. The railway will however, render all possible assistance to him in getting allotment of wagons, but the Railway undertake no responsibility for delay in its supply. The contractor shall be responsible for all handling and timely loading and unloading as per railway commercial rule for public.

26. ISSUE OF MATERIALS BY RAILWAY:

If at any time any material or equipment which the contractor is required to arrange himself is supplied by the Railway either at the contractor's request or in order to prevent any possible delay in the execution of the works due to contractor's inability to make adequate arrangement for the supply,

such material or equipments will be made available to or taken back from the contractor in the Railway's stores, Godown, All handling there from or there to will be the contractor's responsibility Recover of the cost of such supply will be made from the contractor's bills at the present market rate prevailing at the time or issue plus 5% on account of freight and 2% on account of incidental charges and 12.5% supervision charges. Any demurrage of other charges due on account of detention to wagon in loading or unloading will also be recovered from the contractor is not available in Railway's stock or the Railway decides not to supply the same be that for whatever reason, the quoted above or any other cost nor bill this fact be accepted as an excuse for delay in the execution of the work.

27. LOADING: Refer Clause 44.1 to 44.3 of IR Fabrication Specification Serial BI-2001 issued by RDSO.

28. **Metallizing with sprayed ALUMINIUM**: refer IR specification for fabrication Serial No. IRS-BI-2001 issued by RDSO appendix - VII.

29. FURTHER DRAWING AND INSTRUCTIONS:

1. ACCEPTING AUTHORITY/ CAO/CON shall have full power to make and issue further drawings or instructions or direction from time to time as may appear necessary and proper to the contractor for efficient construction completion and maintenance of the works. The contractor shall be bound by the same as fully as if they had been mentioned or referred to in the contract and the contractor shall not be entitled to any extra payment in respect of any work or materials shown or directed.
2. The Tenderer's rate should provide for cutting M.S plates for making out M.S. Flats from plates, in case Ms. Flats are not available. No extra payment for such cuts and grinding that may be necessary for converting M/.S. Plates to Flats will be admissible.
3. If the works are required to be done in by Rly Yard and Rly Tracks are to be crossed, the tenderer shall inspect the site and make him thoroughly acquainted with site condition and quote proper rate including provision for making suitable facilities at site for the work.
4. The work shall have to be done in such a manner that the normal working of the Railway within the railway yard does not get disturbed. Proper protection is to be ensured by the contractor for allowing their labourers to cross the Railway lines with head-leads. No material/temporary structures should be kept adjacent to the running track within 3 M from the centre line of track which may infringe rail traffic. The contractor shall

take necessary precaution to prevent/ cause damage to the Railway property & staff during the execution of the work. These precautions are in addition to provision of the standard conditions and Specification on safety requirement detailed in Chapter II.

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendrughat, Patna - 1180 004

ADDITIONAL SPECIAL CONDITIONS AND SPECIFICATIONS FOR STEEL WORKS & BEARINGS

1.0 GENERAL

This chapter covers the fabrication, assembly and erection of through type steel truss superstructure and bearings.

1.1 SITE INSPECTION

(i) The site of work is between Sadisopur, Bihta and Dumraon section in Bihar State in East Central Railway**.**

(ii) Tenderers are requested to inspect the site and carry out careful examination to satisfy themselves as to the nature of work involved and facilities available at the site. They should note carefully all the existing structures and those under construction through other agencies. They should also study the suitability of utilizing the different equipments and the machinery that they intend to use for the execution of the work. The tenderers should also inspect sites for the purpose of locating their workshop, store yard, laboratory, staff quarters etc., and satisfy themselves with regard to the feasibility of transporting the trusses from the yard to the final site of placement etc.

2.0 FABRICATION

2.1 **General**

(i) The fabrication of the girders and its accessories shall be carried out by the contractor in his factory premises or in a well-established fabrication workshop to be set up by the contractor at the bridge / site.

(ii) The workshop staff shall have requisite experience, proven skill and experience in the technique of fabricating large components. Accuracy of fabrication shall be realized and ensured through controlled high precision jigs, fixtures and templates, which shall be inspected and passed by **R.D.S.O/ Engineer/ Any other inspection agency/officer (herein after called I.O)** as nominated by the Railway.

(iii) **The fabrication shall be preceded by following**:

(a) Process Document Verification

S N	Process Document	Details
1	Approval of Quality Assurance Plans(QAP)	Stage-wise manufacturing process from raw material indicating various steps, tests, checks& their frequency, test equipment used, their calibration status, sampling plan, authority for grant of clearance
2	Scrutiny & Approval of welding procedure specification sheet(WPSS)	Process sheet indicating plate/section used, welding process, type of joint, welding consumables quality, welding parameters to be employed, acceptance standards and tests applicable etc.
3	Welders' certification and Qualification records(WPQR)	Name of the welder, qualification, experience, qualification tests and records for each welding process and joint, welding parameter etc.

Abovementioned Quality Assurance Plans etc are to be submitted by the contractor. The officials responsible for monitoring these identified quality parameters shall also be specified in these **Quality Assurance Plans etc**. **The contractor shall get above Documents, quality assurance plans etc. approved from RDSO/Engineer/I.O. before start of fabrication work.**

(b) Raw Material and Gauge Certification

S N	ITEM	Details
1	Inspection of Raw Materials	Source of purchase, Material Quantity, Size, Visual examination, mechanical properties, chemical composition, ultrasonic examination, Charpy Impact Test, Lab test reports etc.
2	Certification of raw materials	Verification of mill test certificates with test results obtained, cast wise identification of raw materials and ensuring their traceability clearance etc.
3	Inspection of Layout on template floor	Layout plan for manufacture of girders, detailed planning of components, sequence of fabrication etc
4	Inspection of Jigs, Fixtures and Master Plates.	Dimensional inspection of Jigs, fixtures, master plates used in manufacture of girder to ensure accuracy

5	Certification of Jigs, Fixtures and Master Plates	Stamping of Jigs, fixtures, master plates to certify their use during fabrication by the inspection officials.

Abovementioned Inspections, tests and certifications etc shall be done by RDSO/Engineer/I.O before start of and/or during fabrication works.

(iv) The **RDSO/Engineer/I.O** shall be empowered to check the manufacturing process from time to time to ensure that the work is being executed as per approved quality assurance plans etc. The quality records shall be submitted to Engineer for record, after completion of fabrication work.

(v) The work of fabrication in contractor's fabrication shop will, at all times, be open for inspection by **RDSO/Engineer/I.O**. Before dispatch of fabricated steel work from the shops, the same will be inspected in the contractor's fabrication workshop by **RDSO/Engineer/I.O**who will thereafter issue inspection certificate.

(vi) The details of inspection items during and after fabrication are as under:

(a) Inspections during fabrication

Sl No.	Item of Inspection	Details
1	Ensuring use of approved Raw Materials	Raw materials originally cleared only to be used during fabrication.
2	Ensuring use of approved Welding Consumables.	Types of consumables, source, quality, approval status, grade, suitability for fabrication as per WPSS
3	Ensuring use of approved Welders.	Checking of welders' certificates, records, skill and procedure adopted for welding as per WPSS etc.
4	Ensuring use of approved WPSS and Welding parameters.	Checking welding parameters employed, equipments used, correctness of joint preparation.
5	Radiographic examination of butt welds joints	Radiographic examination method, type of film employed, sensitivity, defect interpretation and acceptance decision based on criteria.
6	Ensuring use of approved sets of Jigs ,Fixtures and Master Plates	To ensure interchangeability of components and to avoid distortion.

(b) Inspections after fabrication

Sl No.	Item of Inspection	Details
1	Visual examination of welds	Quality of welds, uniformity of weld bead, size of the weld, weld defects e.g under cut, blow hole , porosity, spatter, cracks etc.
2	Metallographic and NDT examination of Fillet welds.	For ensuring proper weld quality. Dye penetration examination etc.
3	Structural and dimensional inspection	Dimensional checks to ensure conformance to drawing dimensions.
4	Trial Assembly.	Camber on Jacks, Dead Load Camber, Dimensions, Fairness of holes, Temporary Fasteners, Infringements, if any, Butting of compression flanges.
5	Anti-Corrosive treatment	Surface preparation, metalizing and or painting as per applicable painting schedule.
6	Component Inspection	Detailed inspection of dismantled components of trial erected span and inspection of different components of second span onwards.

(vii) Any defect noticed during inspection in the execution of work shall be rectified or replaced by the contractor at his own cost. The decision of **RDSO/Engineer/I.O** as to the existence of the defect and the manner in which the defective work has to be rectified or replaced, shall be final, binding and conclusive**.**

(viii) During fabrication of the girder, necessary arrangement and provision shall be kept for inspection facilities underneath the girder and also for carriage of service cables, pipe lines etc as per approved plans.

3.0 MATERIALS

3.1 STRUCTURAL STEEL, RIVETS AND WELDING MATERIALS ETC.

(i) Structural steel shall conform to specifications contained in RDSO approved drawings as amended/updated.

(ii) The steel shall comply in all respects with the requirements of approved drawings and relevant codes and specifications and shall be procured from approved manufacturers only. All rolled sections shall bear cast mark and shall be of such length as to avoid butt welded joints in components of truss.

(iii) The tenderer(s) shall supply information in the tender regarding source/manufacturers from where procurement of steel is proposed by him/them. However, the usage of type and grade of steel may vary during the execution of the work depending upon the design requirement and market availability. No claim shall be entertained from the contractor on this account and payment shall be as per relevant items in the schedule of items, quantities and rates.

(ii) All welding consumables (electrodes, wire, flux etc.) shall be procured only from the manufacturers approved by RDSO subject to final approval by Engineer.

(iii) In an extreme eventuality of steel of particular section not being made available locally by Indian Steel manufactures, the tenderer(s) may have to import steel. The imported steel shall be of equivalent specification. Use of built-up sections in place of rolled sections can be permitted. Working out the weight of steel for payment in such cases will be based on the actual sections used. Engineer will not take any responsibility of delays in importing the steel and no cognizance of the same will be given in the completion period.

3.2 TEST CERTIFICATES

(i) All materials for the work shall pass tests and/or analysis prescribed by the relevant IS specifications or such other equivalent specifications.

(ii) For all materials including rivets and bolts, the contractor shall furnish copies of test certificates from the manufacturers including proof sheets, mill sheets etc. showing that the materials have been tested in accordance with the requirements of various specifications and codal provisions.

(iii) If any further testing of materials is required by the Engineer in respect of these and other items, the same shall be arranged by the contractor at a reputed laboratory/National test house/workshop Laboratory as directed/approved by Engineer. For this, nothing extra shall be payable and accepted rates in the schedule of items, quantities and rates shall be deemed to include this.

(iv) Even satisfactory outcome of such tests or analysis shall in no way limit, dilute or interfere with the absolute right of the Engineer to reject the whole or part of such materials supplied, which in the judgment of the inspecting authority/ Engineer does not comply with the conditions of the contract. The decision of the Engineer in this regard shall be final, binding and conclusive for all purposes.

3.3 HANDLING AND STORING OF STEEL SECTIONS

(i) All projecting plates or bars shall be kept in shape by timber or angle bars spiked or bolted to them at the ends of chord lengths. End posts etc at their shipping joints shall be protected and stiffened so as to prevent damage or distortion in transit as the Engineer may direct/approve.

(ii) All threaded ends and machined surfaces are to be efficiently protected against damage in transit. The parts shall be transported in convenient lengths.

(iii) All straight bars and plates, except small pieces are to be transported in convenient bundles temporarily riveted or bolted together or bound with wrought iron or suitable wire as the Engineer may direct/approve. All rivets, bolts, nuts, washers, plates under 300mm square and small articles are to be packed separately for each span, weighing, not more than 350 kg in strong petroleum casks or barrels as approved by Engineer. If not entirely filled by the contents the space left shall be closely packed with wood shaving or other suitable material. Bolts and rivets of different sizes shall be separately packed in bags, each bag having a label indicating its contents. A list of contents shall be placed on top of each case or cask.

(iv) All rolled steel received from supplier shall be carefully unloaded to avoid twisting, bending and damage to mill scale. Stacking area shall be covered and the materials placed on a raised platform above ground level. Every care shall be taken to avoid contact with water /moisture or any other harmful substance in order to prevent rusting and pitting.

(v) All sections damaged during transit or handling shall be stacked separately and damaged portions shall be indicated by paint of distinct colour. Such materials shall be dealt with as per instructions of the Engineer. Badly damaged portions may require replacement. Slightly distorted parts or broken parts must be dealt with as the case demands and as directed/ approved by Engineer. The rectified sections shall be used for fabrication only after approval of Engineer.

(vi) Where the work has been passed in the manufacturer's factory premises as strictly interchangeable, all members bearing the same marks can be stacked together without reference to any particular position. Care must be taken by the contractor that the parts at site are available in proper sequence. Every portion of work shall be distinctly stenciled with paint and marked with the punch not less than 15mm dia for guidance in erection in the field, and stamped with the letters specified in the drawings. In the case of non-interchangeable work, the system of marking shall be as shown in drawing.

(i) All field rivets for site riveting, service bolts and drift for assembly of girder, shall be stored under cover.

(ii) The contractor shall supply without any charge, six complete lists of the rivets, bolts, service bolts, washers and drifts required for erecting the work at site, showing the parts of the work to which the various rivets and bolts belong and having each item marked so as to indicate the particular case in which it will be found. List of total rivets required for one girder/ stating length, numbers, and wastage allowance of 12.5% shall be prepared and supplied along with the span components.

The requirements for service bolts is @ 45% and that of drifts @ 15%; covering 60% of field holes in one span plus wastage allowance of 12.5%. Engineer reserves the right to increase the above proportion of service bolts and drifts without any extra cost. Actual requirement for the work shall be assessed by the contractor who shall arrange accordingly at his own cost.

4. WELDING OF COMPONENTS

(a) All welding work shall be as per IRS Standard and by such process that the workmanship is flawless. **All welding shall be by automatic and semi-automatic submerged arc welding process, except where inaccessible.** Site welding shall be avoided, but if necessary, shall be carried out only on secondary members having low stresses to transmit across the joint for which approval of the Engineer shall be required.

(b) Welded construction shall be carried out generally in accordance with provisions of the IRS Welded Bridge Code and IS: 9595 (Metal Arc Welding) and further subject to specifications as under:

(i) Welding shall be done only by qualified and approved welding operators, whose competency has been verified and certified by **RDSO/Engineer/I.O.** Routine re-testing of welding operators may be required every six months if deemed necessary by the Engineer who also reserves the right to retest any welding operator at any time during the contract.

(ii) All long and continuous welds shall be carried out by automatic Submerged Arc Welding (SAW) process only, in order to obtain sound and uniform shape and cross section. CO_2 or manual metal arc welding (MMAW) may be done for short lengths or for secondary connections where access to the location of the weld does not permit Submerged Arc Welding (SAW), subject to approval of Engineer.

(iii) The contractor shall appoint welding supervisors whose competence and qualification shall be subject to approval of **RDSO/Engineer/I.O.** All welds shall be carried out directly under their direction & supervision.

(iv) Welding position for fabrication of components shall be Flat or Horizontal position for SAW (flat position preferred) and Flat or Horizontal position for CO_2 or manual metal arc welding.

(v) To ensure above position for welding, component shall be placed in a manipulator, tack assembled and rotated in the manipulator to assist welding sequence and prevent distortion of member. In absence of manipulator, special jig and fixtures shall be provided for positioning and careful handling by crane, subject to approval of Engineer.

5 WELDING PROCEDURE

The welding procedure shall be such as to avoid distortion and minimize residual shrinkage stresses. Properly designed jigs should be used for assembly. The welding techniques and sequences, quality, size of electrodes, voltage and current required shall be as prescribed by manufacturers of the material and welding equipment. The contractor should submit full details of welding procedure in pro-forma given at Appendix-V of IRS B1 – 2001.

6 SEQUENCE OF WELDING AND WELDING PASS

The sequence of welding and welding pass shall be done as per IRS B1 – 2001.

7 WELD QUALITY TESTS

A. PROCEDURE TRIALS

Welding and flame cutting trials as per following shall be carried out and completed before fabrication on representative samples of materials to be used in the work;

i) The samples of material shall be selected and marked by the Engineer when the materials for the work are inspected in contractor's fabrication yard / store.

ii) The trials of flame cutting shall be carried out in material representative of all thicknesses to be used in the work.

iii) Trials on material 19mm thick may be taken to include all material under 19mm thick and on material 38mm thick to include material between 19mm and 38mm thick. Over 38mm thickness material shall be tested for every thickness increment of 6mm. The trials of flame cutting shall be carried out in material representative of all thicknesses to be used in the work.

iv) The welding & flame cutting trials shall be commensurate to the satisfaction of Engineer/Inspecting Officer and the procedures to be adopted in the fabrication of work which shall include:

a) Welding procedure in accordance with relevant specification.
b) Heat control techniques required to ensure that the flame cut surface of steel are suitable for inclusion in welds.
v) The trials shall include specimen welds from the actual construction which shall be welded in a manner simulating the most unfavorable instances of fit-up and preparation. After welding the specimens shall be held as long as possible at room temperature but in any case not less than 72 hours, and then shall be sectioned and examined for cracking. Six representative samples of each weld joint similar to joint used in fabrication of all components shall be prepared by qualified and certified welding operators.
vi) Following groups of tests shall be carried out:
a) **Butt welds:** Transverse tensile test, transverse & longitudinal bend test with the root of weld in tension and compression respectively, Charpy V-notch impact test.
b) **Fillet welds:** Fillet weld fracture test.
c) **Tack welds:** Inspection for cracking
d) **All welds:** Macro examination.

B. Additional tests as under shall also be carried out for approval and during contract executions stage, as per requirement and instructions of **RDSO/Engineer/I.O.,** the cost of which shall be borne by the contractor. Following tests are normally performed on welds;

(a) Non Destructive Tests (NDT):
- Visual inspection/profile gauge for dimensional check of size and throat thickness of weld.
- Etching test for penetration of Weld.
- Magnetic particle or Ultra Sonic Pulse Velocity (USPV)
- Gamma Radiography & X-ray (only for butt welds)
- Dye penetration of all weld joints.

(b) Destructive Test:
- Tensile test
- Bend test
- Impact test

Once samples representing the weld joint used in fabrication of all components are tested and test results are found satisfactory, then approval shall be taken from the Engineer/Inspecting Officer for the welding of built up components by approved welding operators. **Welding Procedure Qualification Records (WPQR's)** shall be prepared which shall include joint details, welding consumables (i.e. electrode/wire & flux combination), weld parameters (i.e. welding current, wire feed speed), welding position, welding equipment carriage speed (for SAW process), arc Length, arc voltage etc.

C. Qualification and Testing of welders:
(i) No welding operator shall be employed on the work until he has, in the presence of the **RDSO/Engineer/I.O**, passed the appropriate tests laid down in relevant specification.
(ii) Where plates of 12mm thick and over are to be butt welded the tests set out in relevant specification is to be followed.
(iii) Routine re-testing of welding operators may be required every six months if deemed necessary by the **RDSO/Engineer/I.O.**
(iv) The **RDSO/Engineer/I.O.** reserves the right to require any welding operator to be re-tested at any time during the contract.

8 Precautions during welding
(i) The Contractor shall submit list of weld joints of different combined thickness for approval of welding procedure for all members.
(ii) The welding of built up component shall be carried out only by approved welding operators and in accordance with Welding Procedure Qualification Records. WPQR's shall be prepared in advance and approved by the Engineer. Proper welding sequence shall be followed to avoid distortion and minimize residual shrinkage stress, and surface defects, within acceptable tolerance limits.
(iii) To ensure sound and defect free welding of built up members, record of welding adopted as per approved qualifying procedure shall be maintained in Performa prescribed in guidelines for welded fabrication issued by RDSO or as stipulated in IRS-B1-2001.

(iv) Any change during welding for fabrication of built up member, such as welding sequence, welding process, positioning, wire and flux combination, joint details, increase or decrease in combined thickness of joint by 5 mm etc. shall be carried out only after representative samples test and procedure qualification, is accepted**. In no case any deviation from WPQR's without approval of Engineer shall be permitted.**

20 FULL PENETRATION BUTT WELDING WITH RADIOGRAPHY TESTING:

May be done with the prior approval of The RDSO/Engineer/I.O.

21 PAINTING

Specifications for metalizing and painting of bridge girders shall be as per IRS:B1-2001.

21.6 PAINTS FOR PAINTING OF STEEL WORKS: SOURCE, QUALITY & TESTING

(i) Paint and other accessories including those for metalizing work will be supplied by the contractor. Paints manufactured only by the following firms may be used subject to their being in the approved list of RDSO and final approval by the Engineer.

- M/s. Jenson Nicholson paints.
- M/s British / Berger paints.
- M/s Shalimar Paints
- M/s I.C.I. paints.
- M/s Nerolac. Paints.

(ii) In case above brands are not on approved list of RDSO, the contractor shall submit proposal of alternate brands borne on approved list of RDSO.

(iii) Railway may involve them in testing of paints at manufacturer's premises. Final approval of paint, however, will be given by Railway at work site after paints are brought at site and inspected and tested for quality, which are possible at site. Sample at the discretion of Railway, however, may be sent for testing in reputed labs to verify the Manufacturer's test reports at Contractor's Cost.

(iv) The contractor shall furnish to the Engineer, the date of manufacture of paint as certified by the manufacturers with the necessary container marking and test certificate for paint conforming to relevant IS code. In addition to this, he shall also submit the necessary vouchers in respect of paint purchased by him.

(v) The Engineer reserves the right to get the paint tested at contractor's expenses as considered necessary by the Engineer. If the test results do not conform to relevant IS specifications fully, then the lot of paint shall be rejected and got removed from the contractor(s) storage. If the paint has already been applied it shall be removed.

(vi) In addition to above, the following tests are required to be carried out in the field.

- Weight per litre.
- Consistency test
- Scratch test.
- Flexibility and adhesion test.

(vii) The Engineer reserves the right to reject the lot of paint even on the basis of field results.

(viii) Self life of the paints shall be as per provisions in the IRS-B1-2001/Indian Railway Bridge Manual 1998 or as approved/directed by the Engineer.

21.7 PAINTING - GENERAL INSTRUCTIONS Painting shall not be commenced till the surface preparation has been approved by the Engineer or his representative or inspecting officer.

(i) Sealed containers of paint of approved brand shall be used. The paint drums must be rolled, turned upside down and shaken before opening. The paint must be stirred well before use. Over stirring which results in invisible air bubbles etc shall be avoided.

(ii) Where brush painting is accepted, the paint must be applied by means of flat brushes not more than 75mm in width having soft flexible bristles conforming to IS:384.

(iii) Round and oval brushes of approved quality conforming to IS: 487 may also be used as per the instructions of the Engineer or his representative or inspecting officer.

(iv) All new brushes should be soaked in raw linseed oil conforming to IS: 77 for at least 24 hours before use.

(v) A little blue paint shall be added, in the first coat of aluminium paint to distinguish it from second coat. For paints of other colours for final and finishing two coats, suitable pigment shall be used as per instruction of the Engineer, to distinguish the first coat from the second coat.

(vi) The date of painting shall be marked with paint on the member.

21.8 CARE DURING PAINTING

Paint should be mixed in small quantities sufficient to be consumed within one hour in the case of red lead paint.

The applied coat of paint shall be uniform, and free from brush marks, sack marks, blemishes, scratching, non-uniform thickness, holes, log marks, fuel staining, cracking, scaling, and other defects.
Paint shall be applied only on dry and clean surface free from moisture or dust (including scrapping dust).
Paint should be used within the prescribed shelf life from the date of manufacture.

21.9 Each coat of paint shall be left dry till it sufficiently hardens before the subsequent coat is applied. Each coat of paint shall be inspected by the Engineer or inspecting officer and certified as satisfactory before applying subsequent coat.

21.10 PAYMENT

The payment for complete painting of all components of girders including all accessories, painting of contact surface etc including all labour and material, is included in the accepted rates for item in the schedule of items, rates and quantities and nothing extra shall be paid.

22.0 ASSEMBLY & ERECTION

22.1 General

(i) The contractor shall provide at his own cost all tools, machinery, equipment and erection material, including all temporary works and shall assemble all components in every respect as stipulated in the contract and in accordance with approved scheme, drawings and specifications.

(ii) Before starting the work the contractor shall seek the Engineer's approval as to the method he proposes to follow and the type and suitability of equipment he proposes to use for assembly of girder components and launching of girder.

The approval of the Engineer shall however not in any way relieve the contractor of his responsibility for the adequacy and safety of methods and/or equipments he proposes to use for carrying out the work in accordance with drawings and specifications.

(iii) All temporary works shall be properly designed and fabricated & erected with great care for the loads, which they will be called upon to support. Adequate allowance and provision for the effect of lateral forces and wind loads shall be made to meet unforeseen conditions.

(iv) When chains are used for lashing, care must be taken to protect the edges of members from twisting and distortion, damage to paint and similar effects.

(v) Temporary bracing shall be provided to take care of stresses caused by erection equipment or other incidental loads during erection.

(vi) The method used for lifting and slinging flexible members shall be brought to the notice of the Engineer and shall be subject to his approval.

(vii) The contractor shall observe sufficient accuracy in the assembly of every part of the work to ensure that all parts fit accurately together.

(viii) Contractor shall take all necessary precautions for safety of the substructure of this Bridge and substructure and superstructure of approach viaducts, during assembling, erection & launching works of the girders at his own cost. In addition, the contractor shall adopt all precautionary measures for safe plying of inland vessels, boats, crafts etc. at his own cost.

22.2 PROCEDURE FOR ASSEMBLY IN WORKSHOP & SITE

The contractor is required to undertake test assembly of **one girder of each type of span** in his fabrication workshop to prove accuracy of templates and jigs. This assembly can be done in horizontal position. In case the fabrication workshop is set up by the contractor at bridge site itself the test assembly may be done at assembly platform and after testing of accuracy of jigs, fixtures& templates and the camber, the same assembly can be launched after riveting/ welding.
The test assembly shall be certified by **RDSO/Engineer/I.O.**
Following procedure may be used by contractor subject to checking of design by contractor's consultant and final approval by the **RDSO/Engineer/I.O.**

.22.5 Transports from Workshop & Stacking at Site

All items fabricated in the workshop shall be marked and packaged with accompanying package list. The items after fabrication shall be transported by contractor to site by Road in a manner as to cause no damage to the components. Contractor shall be liable for all losses and damages in transit for the materials consigned by him till materials are erected & launched and work completed and taken over by the Engineer. Insurance against loss or damage in transit, if any, shall be the responsibility of the contractor.

After identification & correct marking, all components of each girder shall be dismantled & similar components shall be grouped together & labeled; rivets bolts and plates of each size shall be packed separately in the manner described elsewhere in this tender document, after approval by the inspecting authority.

The packages shall be of such size by length & weight that they are safely transportable by Road. The components shall be provided with necessary packing to avoid damage to painting & members in transit. Dimensions for transport shall be as per standard approved schedules.

Assembly and Launching

(i) The assembling of components at site to required camber and grade along bridge axis, preceding additional temporary structures and accessories for launching of girders and all related matters shall be full responsibility of the contractor.

(ii) The launching of girders shall be done as per approved drawings. For this purpose, the contractor shall submit in triplicate, detailed launching schemes of all the girders including design calculations, safety procedures and method statement with such plans, sketches and other details as may be necessary to determine the suitability and adequacy of the schemes proposed.

The methods adopted shall not, under any circumstances, cause the stresses in various members of girder spans to exceed permissible and safe limits at any stage of launching. One copy duly approved by the Engineer shall be returned to the contractor.

(iii) For the Engineer's use and record, the contractor shall supply free of charge, four sets of prints on strong paper and one set of neatly executed tracings on linen of approved detailed drawings for assembly and launching schemes for use at site.

(iv) The contractor shall provide full structural details of the temporary members and their connections to the girder, along with necessary design calculations not only justifying members sizes but also of the entire launching system adopted. Contractor shall provide full structural details of the temporary member and their connections to the girder, along with necessary design calculations not only justifying members sizes but also of the entire launching system adopted. Contractor will be responsible for getting approval of launching scheme submitted by him from the Engineer.

(v) The launching system shall be test tried if directed by the Engineer and no separate payment for this shall be made.

(vi) Nothing extra will be paid to the contractor for adopting any scheme for launching and the costs are to be covered in the relevant item in the schedule of items, quantities and rates. All temporary members shall be removed after launching and may be taken back by the contractor. Erection gussets provided for connecting the members may be cut and edges ground as directed /approved by the Engineer.

22.8 PERMANENT/TEMPORARY STRENGTHENING

The launching arrangement may include fabrication of launching nose or restraining girders, sway restraining devices such as sway ropes, restraining cables etc, the supply and fixing of members for temporary strengthening of girder members to take care of erection stresses and strains and other relevant components for satisfactory and successful completion of the defined scope of work. Erection stresses must be kept within safe and permissible limits at every stage of erection.

The contractor has to make arrangements at his own cost for the steel for temporary arrangements including sway restraining devices for launching and temporary strengthening of girder, as may be required for the launching operations. The rate quoted should take into account these factors as nothing extra shall be paid.

Launching scheme may also require permanent strengthening of some members. In such case, all additional steel (over and above approved payable weight /DODL as per approved structural drawings) required for permanent/temporary strengthening for proper launching/erection of the girders shall be arranged by contractor at his own cost. Railway shall be responsible for issue/payment of steel only to the extent of approved payable weight as per respective schedule of item.

In case the modified section of the steel required for permanent strengthening is supplied by the contractor under Schedule "C-III", then also the payment shall be made only for the approved weight as per respective schedule of item. In case the modified sections required for permanent strengthening are supplied by the

Railway under clause 41 of chapter-III of these documents, then the cost of additional weight requirement shall be recovered from the contractor's bills. Cost shall be calculated using the rate of steel of equivalent specification as accepted in Schedule "C-III" of these documents.

22.9 INSPECTION AND RECTIFICATION

During erection of girders, the contractor shall provide all facilities and permit the Engineer to inspect the field assembly, site riveting and erection of spans to the satisfaction of engineer.

After inspection by the Engineer/ Inspecting agency, the contractor shall identify cause of any defect, imperfection and/or fault noticed during such inspection and initiate corrective action as per the direction of the Engineer. All defects, imperfections or faults, shall be made good by the contractor to the Engineer's satisfaction and the cost of identifying and rectifying such defects, imperfection or faults shall be borne by the contractor.

23. Methods of Measurements and stage payment in respect of fabrication of structural steel work& erection and other items of the contract.

23.1 MEASUREMENT

(i) For the purpose of payment, quoted rates apply to the weights of steel work calculated from final working drawings based on nominal weights given in the producer's hand books and using minimum square overall dimensions, no deductions being made for skew cuts, holes or notches. Each gusset shall be measured as equivalent to the dimension of the smallest enclosing rectangle. **The wastage of steel in the form of skew cuts etc shall be the property of the contractor.**

(ii) An addition of 1.5% shall be made to the member quantities as arrive above, to account for the weight of rivets and welds.

(iii) The drawing office dispatch lists (D.O.D.Ls) when prepared according to above procedure (i.e (i)and (ii) as above) shall be submitted by the contractor to the Engineer for approval.

(iv) Any steel work the weight of which differs by more than 2.5% from the calculated weight determined from the nominal weight of the sections shall be liable for rejection.

(v) Should the actual weight fall short of the calculated weight by less than 2.5%, the material if accepted, will be paid for the actual weight only. Should the actual weight exceed the actual calculated weight, payment will be made for calculated weight only.

(vi) In the event of a dispute arising as to the weight of a portion of steel work, a weighment shall be made in the presence of the inspecting officer/Engineer.

23. DEVIATION FROM SPECIFICATIONS

The contractor may extend suggestions for member substitution, fabrication method, launching procedure and the like; provided the fundamental character such as area & stiffness of the member and the connections are not adversely affected and preferably remain unchanged. The decision of Engineer shall be final and binding on all such proposals made by the contractor. Nothing extra will be paid to the contractor for such deviations. The contractor shall document all such deviations for the Engineer's record. Entire cost of structural analysis shall be borne by the contractor.

24. CONTRACTOR'(S) LIABILITY

Any fitting, accessory or apparatus which may not have been mentioned in this specification or the drawings, but which are usual or necessary in the execution of such work, are to be provided by the Contractor without extra payment. The whole work must be completed in all details, whether mentioned in this specification or not, with the exception of such work as has been specified in the schedule of items to be separately provided for in the Contract.

Notwithstanding the specifications and conditions stated in the contract, the contractor shall keep the Engineer/Employer authority fully indemnified and free from all liabilities and risks consequential to any lapse on his part in respect of material quality, standard of workmanship, accuracy of fabrication and the like. He shall provide all labour and material required for execution of the work as per listed standards and in absence of any IRS & IS specifications, to the relevant British standards.

25.0 ADDITIONAL REQUIREMENTS FOR SUPERSTRUCTURE

25.1 The railway track on this Section may be electrified in the future. In order to prelude the effect of electric corrosion if any, on account of long stay current due to induction, necessary measures will be taken to equalize the electric potential. The superstructure should be isolated from the bed block by suitable elastomeric plates or other insulating material under the bearings.

25.2 The suitable ladders, inspection galleries, inspection platforms etc. shall be provided as per approved drawing.

25.3 The bearing shall be provided as per specifications and requirements. Anti-seismic arrangements shall be provided as per approved drawings.

25.4 Steel Chequered plates 620mm wide and 6 **mm** thick, conforming to IS 2062/ IS 3502 shall be used for pathway, man refuge floor etc. for entire length of the bridge. The payment for this shall be made as per relevant item in the schedule of items, quantities and rates. The cost of fixing (including fasteners) to girder component/sleepers shall be deemed to be included in relevant item rate and shall not be paid extra.

26. **Seating of bearings shall be as per manufacturer's and Railway's recommendations**.

26.1 Name Plate:

A neat casting bearing the name of the contractor, the place and year of manufacture, the standard of loading to be specified by the Engineer shall be bolted conspicuously on all girders. The drawing of the name plate shall be approved by the Engineer

26.2 Erection Mark:

Every portion of the work shall be distinctly stenciled with paint with letter size not less than 10mm for guidance in the erection in the field, and stamped with the letters specified in the drawings. In the case of non-interchangeable work, the system of marking shall be in accordance with the drawings prepared by the tenderer and approved by the Purchaser.

26.3 Tracings and Printings:

Excepting in the case of standard spans fabricated without any modifications to the standard drawings the Contractor shall supply free of charge, one set of neatly executed tracing on linen. They shall be fully dimensioned and contain all erection marks, notifications printed, the name of the Contractor and any alterations from the contract drawings, which may have been made in executing the work. The drawings shall conform to standard sizes as given in IS: 962 and shall not exceed A0 size. The drawings shall not be folded but rolled outwards on a roller, in addition, three sets of full size copies on strong paper, are to be provided.

26.4 Rivets and Bolts Lists. :

The contractor shall also supply, without charge, six sets of complete lists of the rivets, bolts, service bolts, washers and drifts required for erecting the work at site, showing the parts of the work to which the various rivets and bolts belong and having each item marked so as to indicate the particular case in which it will be found.

27. Photographs:

The contractor shall also supply without charge, two sets of large well-executed, unmounted photographs of the first span of each description of truss bridge when erected, taken from two points of view and showing the erection marking as clearly as possible

26.6 Attestation of Tracings etc.

The tracings, photographs and lists shall be examined and signed by the Inspecting Officer/Engineer. They shall be supplied with the first installment of the work delivered.

27 Testing :

The inspecting officer/Engineer shall be empowered, at his/her discretion to make or have made under the supervision, any of the tests specified in the specifications mentioned herein in addition to such other tests as he/she may consider necessary, at any time up to the completion of the contract and to such an extent as he/she may think necessary to determine the quality of all materials used therein. In doing so, he/she shall be at liberty under any reasonable procedure, he/she may think fit to select, identify, have cut-off and take possession of test pieces from the material either before, during or after its being worked up into the finished product.

27.1 He shall also be empowered to call for a duly authenticated series of mechanical tests to be obtained from the manufacturer of the materials used in the work and to accept the same in lieu of other tests to the extent he/she deems fit. The contractor shall supply the material required for the test pieces and shall also prepare the test pieces necessary at his own cost.

27.2 The test shall be carried out by the contractor, for which contractor shall provide all facilities including supply of labour and plant. Inspecting officer may at his/her discretion direct the contractor to dispatch such tests

pieces as he/she may require to the National Test Hose or elsewhere as he/she may think fit for such testing purposes

27.3 Check on Tests made at Contractor's work.

27.3.1 The Inspecting Officer/Engineer, may at his/her discretion, check test results obtained at Contractor's work by independent tests at National Test House/or any other recognized laboratories, as nominated by the Inspecting Officer.

27.3.2 The Inspecting Officer/Engineer shall at all times be empowered to examine and check the working of the contractor's plant before and after using it. Should the contractor's plant be found, in the Inspecting officer's opinion, unreliable, he/she is empowered to cancel any tests already carried out in this contract and have these tests carried out at any National Test House or elsewhere, as he/she may think fit.

28. Analysis.

The contractor shall supply authenticated copies of analysis of any materials used in the work when required to do so by the Inspecting Officer/Engineer who shall be empowered to accept them to the extent he/she thinks fit. In addition to the above samples may, at the Inspecting Officer's/Engineer's discretion be subjected to complete analysis at the National Test House or elsewhere as the Inspecting officer may determine, the cost the same is to be borne by the purchaser.

29. Inspection (General):

The Inspection Officer/Engineer shall have free access to the works of the Contractor at all times and shall be at liberty to inspect the process of manufacture at any such time and to reject in whole or part, any work or material that does not conform to the provisions of this specification and may order the same to be removed, replaced or altered at the expense of the contractor. All gauges and templates necessary to satisfy the Inspecting Officer of the complete interchangeability of parts must be supplied by the contractor free of cost.

30. SCHEME OF LAUNCHING

30.1 Detailed launching drawings/ schemes based on the approved structural and fabrication (shop) drawings shall be developed by the contractor at their own cost and the same will be submitted after proof checking from the reputed Institutions/Consultants. Some of the reputed consultants are listed below:-

(i) IIT Delhi / Roorkee/Kanpur/Chennai.

(ii) IT/BHU.

(iii) RITES Ltd.

(vi) The detailed launching scheme after proof checking from reputed institutions / consultant shall be submitted to Engineer for approval. Entire cost of proof checking, alteration/ modification/ strengthening of members/joints etc. shall be borne by contractor. Rate quoted by Contractor for different items should include this aspect. Contractor will have to check the design of the members of the girders/truss and if any modification/alteration/strengthening of any member is required for any additional stresses, the same shall be done by the contractor at his own cost. **Nomination of the Institution/Consultant for proof checking works will be approved by concerned Chief Engineer/ Con.**

30.2 Engineer will make all efforts to approve the drawings submitted by the contractor within reasonable time but no claim for any delay on this account shall be entertained by Engineer. However, required time extension may be granted by the Engineer without any extra claim payable to the Contractor.

30.3 For Engineer's use and record, the contractor shall supply free of charge, four sets of prints on strong paper and one set of neatly executed tracings of all approved detailed drawings and fabrication drawings, soon after communication of approval, for use at site.

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendrughat, Patna- 800004

Special Condition & Specification for TRACK WORKS

1. These special conditions & Specifications shall be read along with the set of tender documents and not in isolation there from.
2. The work shall be carried out according to the provisions of Indian Railway permanent way manual, Indian Railways Track Manual, Schedule of Dimensions General & Subsidiary Rules, and track circular/drawings issued up to the date of tender notice in addition to the books of reference. In case of contradictions, the decision of the Engineer shall be final. The contractor may obtain from or refer to these books in the office of CAO/CON or Dy. CE (CON)
3. The contractor shall carry out track works as per conditions and specifications of this chapter. The payments shall be made only as per P. way schedule of items and all expenses needed to complete the work shall be included in the rates quoted by the Tenderer in the various Schedules against Various items. The Tenderer is advised to understand and assess the work content involved in each item and quote accordingly.
4. The contractor must at all times ensure safety of running trains.
5. Notwithstanding the provisions of clause 62 of General conditions of contract 2019, which is a part of these documents, the railway reserves the right to terminate the contract with immediate effect without any notice of any kind what so ever, in cases where the contractor or his workmen, are found responsible for any act which makes the running of trains unsafe.
6. In case an accident occurs to a train at the work site and an Enquiry Committee is set up by the Railway to investigation the cause of the accident, the contractor shall co-operate fully with the enquiry committee and finding of the committee shall be final and binding on the Contractor, If contractor is held responsible for the accident, the contract is liable to be terminated with immediate effect, notwithstanding the provisions of the General conditions of Contract 2019 in addition to the Railway being entitled to recovery of full loss suffered by the railway from the contractor.
7. The track, which is open to and carries train services, is here in under called "running track.".
8. The contractor shall not start any work on running track or close to it without the permission of the Railway's supervisors at site and otherwise than under their supervision/Instruction. In case the Contract or his representative starts any such work in the absence of the supervisor and/of without his representative starts any such work in the absence of the supervisor and/or without his instruction. / supervision, it shall be treated as unauthorized and illegal tampering of the track and the contractor shall be liable for action under the Indian Railways Act, Indian penal Code and other laws as applicable.
9. The work on the running track or the use of running track for carrying Dip-lorry, Material trolley, Rail dolly etc. is to be done only under speed restriction, look out caution, and/or block protection in accordance with rules laid down in the various books referred to above ensuring at all times that the track is safe for the passage of trains, and also ensuring that the trains are not detained.
10. Speed restriction, caution orders of traffic blocks, if and as required to carry out track works will be arranged by the railways. Actual availability of speed restriction, caution of traffic blocks in day/night will depend on flow of traffic and there may be variations in availability of the same via-a-via those planned. The wastage of labour, if any, occurring on account of non-availability of speed restrictions, caution order or traffic block would not be paid for. No claims on such account shall be considered. The contractor should take into account the probability of labour

utilization depending on the above factors on the section where the work is to be done and quote his rates accordingly.

11 The contractor may also have to carry out works at night, depending upon the availability of blocks on running tracks, for which adequate lighting arrangement shall have to be done by the contractor.

12.The Engineer may refuse to allow the contractor to commence or carryout a work or part of it on or close to running track or to use the running track for any purpose if he considers that the labour, tools and other arrangements etc. of the contractor are not sufficient to complete the work in required time or to required quality. The decision of the Engineer in this regard shall be final &Binding on contractor.

13. The Railway shall arrange for protection of running track(s) by adequate flagmen, equipment, signals etc. as per rules, by their staff during the work by the Contractor, The contractor shall also depute his own flagmen/ look out men.

14. Provision of temporary speed Restriction Boards, and their lighting etc. shall be arranged by the Railway.

15. The contractor shall proceed with the work in a systematic manner so as to ensure that the length of track under, and duration of speed restrictions, caution order and/or traffic blocks are minimum, in close co-operation, consultation and obedience of the Engineer, whose decision in these matters shall be final & binding on the contractor.

16. In case, any train is detained at the approach of a work site or a station on account of its passage being considered unsafe by railway's Supervisor due to bad workmanship or neglect of any kind on the part of the contractor or his workman or due to the contractor's being delayed, the Railway shall rectify the defects for ensuring safe passage of trains by any means considered expedient at the full risk and cost of the contractor. The Railway's decision in this regard shall be final & binding on the contractor.

17. The works shall be carried out in such a manner that there is no infringement to the Railway's Schedule of Dimension at any time. All materials shall be kept secure and clear or foul the dimensions due to vibrations etc. of running trains or any other cause what - so - ever.

18. The Contractor shall arrange for adequate Look-out-men to warn his workers of approaching trains. No compensation will be paid by Railway in case of injury to contractor’s workers and the contractor shall indemnify the Railways of any responsibility.

19. At each work site, the contractor shall employ and post sufficient but not less than one technical supervisor(s) who should have adequate experience in execution of track works. The name, technical qualification and details of experience of the technical supervisor (s) so employed shall be advised to the Engineer-in charge and his approval obtained for deploying such supervisor (s). Preference may be given to retired PWIs. P. Way Mistries or mates of railway. If in the opinion of the Engineer, any supervisor is not fit to be in-charge of the work, he shall be replaced. In this matter, decision of the Engineer shall be final and binding on the contractor.

20. The Contractor's technical supervisor shall be present at the work site, at all times, when the work is being executed. Moreover, he shall always be available at call to meet any emergent situation at all times during the currency of the contract.

20. The contractor shall organize his work in a safe manner so that the labour is not injured during the work. The contractor shall provide adequate safety apparatus like helmets, gloves, shoes to all his workmen. The contractor shall be fully responsible for making good any less/damages suffered by his workmen during the course of the work.

22. The contractor shall employ adequate number of workers, tools, plants, equipment etc. to give consistent and desired progress per day, and also to complete the assigned works on running

tracks during the period of speed restriction/caution order/blocks.
23. Site order books, progress register and material issue register shall be maintained at site and entries will be recorded on day-to day basis in the registers and signed jointly by Railway supervisor and by contractor or his authorized representative. All details of various stages of work in various locations, e.g., resources deployed by contractor, progress of different stages of work, imposition and removal or speed restriction if required, measurement of track parameters, description and quantum of P.Way materials unloaded/loaded under block or without block at various locations account of released materials etc. shall be recorded therein, and the contractor shall always co-operate in this recording. If the contractor has any point to bring to Rly's notice. He shall be at liberty to record the same in the site order book.
24. The contractor may be required to suspend work on running lines or close to the same, during adverse conditions, such as heavy rains, dry hot weather, adverse traffic conditions etc. and no compensation shall be payable.
25. Railway will supply dip-lorries, track Jacks and Jim crows free of cost. The contractor shall be
responsible for maintaining and repairing the dip-lorry/Jim Crows. Jacks during execution of the work and during the period the equipment is under his charge and shall return them under good working condition. However, in the event of non-supply of this equipment. The contractor shall make alternative arrangement for doing the work and non-supply of these equipments shall not be a reason for not doing or delaying the work. All other equipment, tool/plants shall be arranged,
26. For executing the works the contractor has to make sufficient arrangements of his own labours, consumables and all other equipments, tools, plants and machineries etc, as may be required for executing the work in a workman like manner as per specification/rules and desired progress or work.
27. All the tools. Plants, equipments and other materials used by the contractor shall be of approved type only.
28. All P.Way materials unless otherwise mentioned in the schedule, will be supplied by the Railway.
29. In case of loading and unloading from Railway wagon in any other manner all commercial formalities shall be observed. All demurrage/ warfage charges accruing due to neglect/delay of contractor. shall be payable by the contract the contractor should also send the material after unloading at suitable place as directed by site-engineer.
28. To the extent feasible, information shall be given in advance of the expected arrival of loaded/empty wagons/trucks at the site and the contractor shall make all arrangements of equipments and men to handle them. Contractor or his representative should be in regular touch with the Engineer or his representative to receive such information.
29. All materials, other than those, the transporting, loading unloading etc. of which is payable under
various schedules of item, shall be supplied by the rly to the contractor at the store of LOW/PWI/c at the places as mentioned in the schedule on issue note, and the contractor shall transport the same to the site of work including loading/unloading, crossing of lines etc. without any separate payment.
30. All materials should be handled with proper care to avoid any damage there to specially PSC sleeper and rails. Any damages caused in the process shall be made good by the Contractor.
31. Switches and crossings are delicate and require careful handling and any damage due to negligence of contractor shall be made good by the Contractor.

32. Same rate would be applicable for new/old materials, no reduction being made in payable weight
for old materials due to corrosion, wear etc. The payments shall be made on sectional weight basis without reduction of weight due to wear & tear, corrosions etc. or on actual weighment basis as practicable.
33. A set of Tongue Rails for curved switches will be identified separately as left hand tongue rail or right hand tongue rail and should be used correctly.
34. Track should be laid to the parameters as below :
S.N. Parameters Details Limiting value.
a Gauge Sleeper to sleeper variation. +/- 2mm
b Cross-Level To be recorded on every 4th sleeper +/- 3mm
c Alignment (i) On straight on 10 M chord +/- 2mm over
(ii) On curve on 20M chord for radius +/-5mm
equal to or more than 600 M
(iii) for R lessthan600M versine +/- 10mm
d spacing of with respect to theoretical spacing +/- 5 mm
Sleepers
e Joints (i) Low Joints Not permitted
(ii) High Joints 2mm
(iii) Square ness of joint on straight +/- 10mm
f Expansion From prescribed value at the +/- 2mm
Gaps temperature of laying
35. While Linking/assembling of Track, pts. & X-ings, derailing switches, diamonds, switch expansion joints, the following works shall be carried out for which no separate payments shall be made and cost of the same shall be included in the relevant item rates in schedule of items.Cousion of ballast in M/L 350MM & LOOP LINE 250MM
(i) All parts shall be cleaned with wire brush to remove rust and/or all kinds of foreign materials.
(ii) For PRC sleepers, ERCs and MCI should be thoroughly cleaned and grease should be applied on
the central leg on ERC and eye of insert and then only clip should be driven. The grease should confirm to IS 08-1981 (Specification for grease No. 0, graphite) and should be arranged by the contractor at his cost.
(iii) Fishplates, bolts and fishing planes shall be cleaned by wire brush, oiled and greased with approved quality of grease & oil.
(iv) Sleeper spacing should be marked with white paint on the web of the rail before insertion or spacing the sleepers.
(v) All cuttings of rails, drillings of holes, auguring, driving spikes etc. as required shall be done with appropriate tools.
(vi) All fittings shall be fixed in a manner as prescribed in the various manuals /books/circulars mentioned in these documents.
(vii) All the works incidental to and/or necessary to give finished assembly shall be carried out.
(viii) All laying shall be done to proper geometry and alignment.
38. Linking of track shall be done in the following sequence manner.
(i) Ballast surface shall be brought to be horizontal level before taking up the linking of track. If required. De-kinking of rails by Jim crow to be done before fastening the rails to sleepers.
(ii) Marking of sleeper spacing on rails with approved quality of Paints arranged by the Contractor.

(i) Crossing of fish plates and oiling of fish bolts with approved quality of grease and black oil shall be arranged by the contractor.
(ii) Provision of proper expansion gap as per IRPWM.
(v) Sleepers shall be laid square to the rail.
(vi) All the P. way fittings shall be properly driven as specified in IRPWM. Initial as well as additional packing shall be done in the following manner:-
a. Squaring of Sleepers.
b. Slewing of track to correct alignment.
c. Gauging.
d. Packing of sleepers.
e. Re-packing of joint sleepers.
Lead Chart:
Before commencing the work of leading materials, a lead chart is to be made jointly by the Engineer-in-charge and the contractor and the same will be binding on the contractor for deciding the lead of materials.
39. A plain track means two rails of specified section placed on sleepers of specified type and density with all fittings complete, duly cleaned, greased as per specification capable of allowing a train to run over it at unrestricted speed. A plain track may be straight or curve. It shall also include provision of appropriate curvature, super elevation etc.
40. (i) One set of crossing consist of :
(a) Point and component splice rails duly assembled to from Vee rail and fastened with necessary comment of wing rails with requisite number of long bolts, spherical washer, nuts etc. and check rails,
OR,
(b) Single monolithic cast manganese (CMS) crossing with checkrail.
(ii) One set of assembled tongue rail consists of one tongue rail along with stock rail duly
(iii) Assembled from SRJ to heel Block, With the necessary complement of special blocks, long bolts etc. Two sets of tongue rails with stretcher bars make a switch assembly. The switch assembly may be straight or curved. If curved, it may be left hand/Right hand.
(iii) One turn out including switches, lead rails & crossing I.e. from stock rail joint to back of crossing. Inclusive of all fittings, complete.
(iv) One cross over consist of two turn outs, connected by a length of straight of curved plain track. Linking of cross over shall be paid for as linking of two turn outs plus the length of plain track in between the back of crossings or the two turn outs.
41. The railways shall give notice to the contractor 15 (Fifteen) days in advance regarding arrival of CSM machine for carrying out two rounds of packing & to make track fit for running of trains at a minimum speed of 80 Kmph. The contractor shall complete all the works required for final machine packing such as linking, ballasting & initial packing before arrival of CSM in order to achieve better quality & progress. Average progress of packing expected from the machine is 04 T/Km per day per round of packing. If average progress is less than 04 T/Km per day per packing due to fault of the contractor a penalty of Rs. 8140/- per day will be recovered from contractor's bill.
However, if any failure is on account of railways such as machine breakdown etc. no penalty shall be imposed for that period of detention.
Decision of Railways in this regard shall be final & binding on the contractor

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendrughat, Patna- 800004

Special conditions & specifications for supply of 50mm nominal size track ballast

1. CONDITION FOR SUBMISSION OF TENDER: Each tenderer at the time of tendering shall submit the
following.
1.1 For tender having work of only of "Supply and Staking of ballast" the tender is required to submit test report of ballast as per provision of "Specification of Track Ballast IRS-GE-I, June-2004" OR the latest specifications of RDSO/Railway.
1.2 The tenderer shall also furnish an undertaking that the ballast supply at all times will conform to specification for Track Ballast as specified by Railway
2. DETAILED SPECIFICATION:
GENERAL:
2.1 BASIC QUALITY: Ballast should be hard, durable and as far as possible angular along edges/corners,
free from weathered portions of parent rock, organic impurities and inorganic residues.
2.2 PARTICLE SHAPE: Ballast should be cubical in shape as far possible. Individual pieces should not be
flaky and should have generally flat faces with not more than two rounded/sub-rounded faces.
2.3 PHYSICAL PROPERTIES: Ballast sample should satisfy the following physical properties in accordance with IS : 2386 Pt.IV-1963.
BG
Aggregate abrasions value 30% max
Aggregate impact value 20% max
Specific gravity 2.65
2.4 "The water absorption" tested as per IS : 2386 Pt. III 1963 should not be more than 1%.
2.5 SIZE AND GRADATION OF BALLAST:
Ballast should satisfy the following size and gradation:
a) Retained on 65mm sq. mesh sieve 5% max
b) Retained on 40mm sq. mesh sieve* 40%-60%
(for machine crushed ballast only)
c) Retained on 20mm sq. mesh sieve Not less than 95% for hand broken and 98% for machine crushed
2.5. 1 OVER SIZE BALLAST:
(i) Retention on 65mm sq. mesh sieve: A maximum of 5% of ballast retained on 65mm sieve shall be allowed without deducting of payment. In case of ballast retained in 65mm sieve exceeds 5% but does not exceed 10%, payment at 5% reduction in contracted rate shall be made for the full stack/wagon. Stacks/wagons having more than 10% retention of ballast on 65mm sieve shall be rejected.
(ii) In case of ballast retained on 40mm sq. mesh sieve exceed 60% limit prescribed in 2.5.1 (b) above, payment at the following reduced rate shall be made for the full stack/wagon in addition to the reduction worked out at (i) above.
5% reduction in contract rates if retention on 40mm square mesh sieve is between 60% (excluding) and 65% (including)
10 % reduction in contract rates if retention on 40mm sq. mesh sieve between 65% (excluding) and 70% (including)
(iii) In case of retention on 40mm sq. mesh sieve exceed 70% the stack/total ballast in the wagon shall be rejected.
iv) In case of hand broken ballast supply, 40mm sieve analysis may not be carried out. The executive

may however ensure that the ballast is well graded between 65 mm and 20mm size.

2.5.2 UNDER SIZE BALLAST: The ballast shall be treated as under size and shall be rejected if:

(i) Retention on 40mm sq. mesh sieve is less than 40%.

(ii) Retention on 20mm sq. mesh sieve is less than 95 % (for hand broken) & 98 % for machine crushed.

2.6 METHOD OF SIEVE ANALYSIS:

(i) Sieve sizes mentioned in this specification are nominal sizes. The following tolerances in the size of holes for 65, 40 and 200mm nominal sieves sizes shall be permitted.

65mm Square Mash Sieve Plus Minus 1.5 mm

40mm Square Mash Sieve Plush Mines 1.5

20mm Square Mash Sieve Plus Minus 1.0 mm

Mesh size of the sieve should be checked before actual measurement. The screen for sieving the ballast shall be of square mess and shall not be less than 100 cm in length, 70cm in breadth and 10 cm in height on sides.

(ii) While carrying out sieve analysis, the screen shall not be kept inclined, but held horizontally and shaken vigorously. The pieces of ballast retained on the screen can be turned with hand to see if they pass through but should not be pushed through the sieve.

(iii) The percentage passing through or retained on the sieve shall be determined by weight.

3. SELECTION OF SOURCE:

Ballast shall be manufactured from good quality stone/boulders, satisfying the above-mentioned physical properties. Top layer of rock must not be used.

Ballast should be pure that is should not contain, any inorganic residues and must be free from inferior or, harmful substances.

Contamination of ballast with ground soil, etc. of the stacking area and/or other impurities shall not be allowed to take place during storage or stacking.

4. SAMPLING AND TESTING:

4.1 A minimum of three samples of ballast for sieve analysis shall be taken for measurement done on any particular date even if the numbers of stacks to be measured are less than 3.

4.2 Each tenderer at the time of tendering shall submit the test of specific gravity, impact value, abrasion value, water absorption value, etc. of track ballast from Formation Engineering Laboratory, Eastern Railway, Howrah or from any laboratory of RITES or from any recognized Engineering College.

4.3 In order to ensure supply of uniform quality of ballast, the following norms shall be followed in respect of sampling, testing and acceptance.

4.3.1 On supply of the first 100cum, the test for the for size, gradation, Abrasion Value, Impact Value and Water Absorption Value (if prescribed) shall be carried out by the railway Further supply shall be accepted only after this ballast satisfies the specification for these tests. Railway reserves the right to terminate the contract as per GCC at the stage itself in case the ballast supply fails to conform with any of this specifications.

4.3.2 Subsequent tests shall be carried out as follows:

Name of Test

Supply in wagons

Size and gradation test

No. of test

ii) Size of one sample

One for each wagon

** 0.027 cum

Abrasion Value, Impact Value and Water Absorption test

@ Testing Frequency.

One test for every2000 cum

** This sample should be collected using a wooden box of internal dimensions 0.3m X 0.3m X 0.3mm from different parts of the stack/wagon.0

@ These test shall be done for the purpose of monitoring quality during supply. In case of test results not being as per the prescribed specification at any stage, further supplies shall be suspended till suitable corrective action is taken and supply is ensured as per specifications.

The above test may be carried out more frequently if warranted at the discretion of Railways.

4.3.3 All tests for Abrasion Value, Impact Value and Water Absorption Value conducted subsequently to award of contract shall be done at Contractor's cost.

4.3.4 Each tenderer at the time of tendering shall submit the test report of specific gravity, impact value, abrasion value, water absorption value, etc. of track ballast from formation Engineering Laboratory, Eastern Railway, Howrah or from any laboratory of RITES or from any recognized Engineering College.

5. METHOD OF MEASUREMENT:

(i) In case of ballast supply taken by direct loading into wagons, a continuous white line should be painted inside the wagon to indicated the level up to which ballast should be loaded. The cubical content in cubic meter corresponding to white line should also be painted on both sides outside the wagon.

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(ii) In addition to painted line, mentioned in Para 5.2(i), short pieces of flats (cut pieces of tie bars or otherwise) with cubical content punched should be welded at the center of all the four sides as permanent reference. In case the supply is taken in general service wagon actual measurements will be taken.

Welded Flat White Line

CUM 28.85

(iii) The Engineer will take measurement after conducting screening test in wagons in the presence of the contractor or his authorized representative.

(iv) If the ballast loaded into wagons is found to be not according to specification during the check by the AEN, the ballast shall be unloaded and removed the rejected ballast within 24 hours from the time of order for removal, the Railway will cause it to be unloaded and removed to such place as may be convenient to the Railway. For the quantity of the rejected ballast, the Railway shall recover the demurrage charges for the detention of the wagons, ground rent and the expenditure incurred by the Railways in unloading and removal of the ballast. The Railway shall not be responsible for any loss or any damage to the ballast so rejected.

(v) The measurement shall be recorded in measurement book and signed by the contractor and the Engineer before the departure of the ballast rake.

(vi) After the measurement have been taken, the AEN shall prepare issue-cum-receipt note and Challan in six (6) copies on identically numbered foils which will give quantities of ballast wagon wise. All copies of issue-cum-receipt and Challan shall be signed by the AEN and the contractor or his authorized representative. The issue-cum-receipt note and Challan shall be prepared before the wagons leave yard. One copy of the note shall be given to the contractor, one copy shall be retained by the AEN and one copy shall be sent to his district office along with measurements book. Three copies shall be sent to the consignee who will check the measurement on receipt and verify the same. The consignee shall send one copy duly verified to the consigners district office. One copy duly verified to his district office and shall retain the third copy with him. The process shall insure that the quantities of ballast are properly accounted for and necessary TS from one district to another are verified.

5.1 SHRINKAGE ALLOWANCE:

Payment shall be made for the gross measurement either in the stacks or in wagons without any deduction for shrinkage / voids. However, when ballast supply is made in wagons, shrinkage upto 8% shall be permitted while verifying the booked quantities by the consignee.

6. ISSUE OF RMC:

(i) RMC notes shall be handed over to the contractor by the AEN/XEN as approved nominated inspector indicating the consignee particulars. Acknowledgement of the contractor will be obtained in a register of RMC Notes maintained for the purpose. The contractor shall submit indents to the Station Superintendent/Yard Master within 7 days of issue of RMC notes by the AEN/nominated inspector and should follow up the supply of wagons against the indents submitted by him.

(ii) The contractor shall submit a monthly statement within 7 days after expire of each month to the AEN indicating the particulars of RMC received by him, indents placed against those RMC's the date of placements of wagons against those indents and the dates of loading into wagon.

7. LOADING INTO WAGONS :

(i) The term "wagon" used in this document shall include all types of railway wagons of the Railway.

(ii) The contractor shall load wagons to the full carrying capacity of wagon with loading tolerance of 2T which is equivalent to CC+4+2T load. With this permissible capacity , ballast in BOBY N can be loaded up to brim and will still remain within above permissible carrying capacity.

(iii) No payment shall be made for ballast loaded in wagons over and over the carrying capacity of the wagons plus permissible overload.

(iv) The loading of wagons by the contractor shall be governed by the rules of the Commercial Department of the Railway and the contractor shall be bound by the same. All the demurrage charges accruing due to neglect/delay of the contractor shall be payable by the contractor. For this

purpose Civil Engineering Departments Hopper wagons shall be treated at par with Commercial Department box or similar type wagon.

(v) The ballast shall be loaded by the contractor at the quarry sidings.

(vi) It shall be the responsibility of the contractor to ensure that only the ballast which is passed by the AEN/XEN is loaded in wagon.

(vii) Density of ballast will be approved by Dy. CE/Con after joint verification/calculation by AEN/DEN and contractor or based on report of govt. institute. It is required for calculation of under load/over load as measurement is taken in volume.

(viii) Volume of ballast shall be calculated at the rate of 0.689cum per Metric Tonne (i.e. Bulk density is 1.45 Metric Tonne per Cubic Metre), wherever such conversion is required for any purpose.

East Central Railway
Office of the Chief Administrative Officer (Con)
Mahendrughat, Patna- 800004

SPECIAL CONDITIONS & SPECIFICATIONS FOR BUILDING WORKS.

:

1. SCOPE OF WORK:

1.1 Any other work incidental to the construction of buildings.

2. STANDARD SPECIFICATIONS AND CODE OF PRACTICE :

2.1 The following Standard Specifications must be followed with regard to design, material and workmanship apart from Architectural and Structural Drawings & Specifications from Book of Reference.

(i) I.S. Code of practice for Plain and Reinforced Concrete (I.S.456)
(ii) I.S. Code of Practice for use of Structural Steel (I.S. 800)
(iii) I.S. 1742 Code of practice for building drainage.
(iv) IRS code of practice for Electric Arc welding of mild steel structures.
(v) IS specification for Fine and Coarse Aggregate from natural sources for Concrete (IS-515).

East Central Railway Engineering Department Standard Specification for Materials and Work-2008 with errata and corrections up to date corrections slip up to date.

3. PLAIN/REINFORCED CEMENT CONCRETE WORKS :

3.1 The ISI code of practice for the structural use of reinforced concrete in building shall from part of these additional specification and this code and the standard practice in reinforced concrete construction that has been evolved by the adoption of this code shall be followed.

3.2 Fine and course aggregate: Fine and coarse aggregate for all type of concrete works shall conform to East Central Railway standard specifications, 2008 & IS:383.

3.3 In addition to the routine test/ special test on material will be carried out whenever required by the Engineer. The cost of the special test will be borne by the Railways, if the results are as per standard laid down, failing which the cost of these tests will be borne by the contractor. Necessary facility in the form of moulds, cones, scales, materials, labour for casting, curing, specimens and such other facilities as per prerequisite required to any standard concrete test will be provided by the contractor free of cost including concrete being tested.

4. FORM WORKS :

4.1 **GENERAL :**

Shuttering shall be either of wooden planks of suitable thickness with steel sheet lining or of steel plates stiffened by steel angles duly approved by Engineer. It should be ensured that the shuttering should be leak proof and there should not be any leakage of cement slurry during casting of the concrete. The shuttering shall be supported on wooden battens and beams and prop of vertical ballies properly coarse branched together, so as to make the formwork rigid. In place of ballies props, brick pillar of adequate section, Built in mud mortar may be used.

4.2 The form work shall conform to the shape, lines and dimension as showing in the plan. It shall be sufficiently rigid and strong to maintain correct shape of the members during deposition of concrete and shall be able to resist forces caused by vibration of concrete and incidental loads,
associated with men working over it. The battering shall have smooth and even surface and its joints shall not permit leakage of cement grout.

4.3 If at any stage of working during or after placing of concrete in the structure, the formwork bulges out beyond the required shape of the structure, the concrete shall be removed and work redone with fresh concrete and adequately rigid formwork at contractors cost. Details of shuttering and centering shall be subject to the approval of the Engineer-in charge, the completed formwork shall be inspected by Engineer-in charge, before the reinforced cement bars are placed in positions.

4.4 **CAMBER :** The shuttering on beams and slabs shall have camber of 4 mm per meter (1 in 250) or as directed by Engineer-in charge, so as to off set the subsequent deflection. The cantilevers, the camber at free end shall be 1/50th of the projected length or as directed by the engineer-in charge.

4.5 Provision for holes shall be made in the shuttering for inserting fan hole clamps and provision of conduits etc. for concealed wiring and providing architectural finishing grooves if any at the junction of slabs with beams or walls or columns wherever required for architectural consideration, concealed sanitary and water supply pipes and fittings etc. as are required to be built in connection with the provision of various services in the

buildings for service or architectural reasons. It may also be necessary to make holes in the shuttering of RCC columns for projecting bars. The tendered rates shall be paid to the contractor for making these provisions and no deduction shall be made on account of any saving in RCC due to these. The formwork for the RCC chajja will be so made that the drip coarse band can be casted along with the chajja. No extra payment shall be made for this drip coarse band.

5. REINFORCEMENT:

5.1 Reinforcement may be either with M.S. Round or Tor steel as decided by the Engineer as per approved drawing. No extra payment shall be made in case tor steel is used in lieu of mild steel.

5.2 It shall be the responsibility of the contractor to clean the reinforcement bars with dry gunny bags, if they are quoted with rust of impurities and nothing extra shall be paid for the same.

5.3 The rate for reinforcement cement concrete includes straightening and uncoiling of rolls of reinforcement. No extra payment for strengthening and/or uncoiling of reinforcement shall be payable by the Railway.

6. CONCRETING:

6.1 The concrete shall be mixed properly in approved type mechanical mixer as per East Central Railway Standard Specifications for Works and materials-2008. The proper consistency shall be determined by the Engineer-in-charge by a slump test, which shall be carried out. Cost of moulds, labour, tools and plants etc. for slumps tests of concrete shall be borne by the contractor including concrete used in testing.

6.2 The concrete shall be compacted immediately after placing by means of mechanical vibrator of suitable design for continuous operation.

7. MEASUREMENT:

7.1 All work will be paid for at the tendered rates on the basis of actual measurements at site. No account will be taken for heights and thickness over those shown in the plans, unless they are authorized by Engineer-in charge, in writing.

7.2 Measurement shall be made according to East Central Railway Standard Specifications for Works and materials-2008.

8. RATES :

8.1 For all items of reinforcement concrete, the tendered rates shall include supplying and removal of scaffolding, supply of formwork, shuttering and centering etc. of approved design, their erection, dismantling, clearing and oiling, etc, cutting, hooking, bonding, binding, bailing and straightening of steel section, binding and placing in position of reinforcement etc. complete, fabrication of the reinforcement in required shape as per drawings, screening or washing the aggregate, mechanically mixing and placing the same in position & use of equipments including mechanical mixers, vibrator etc. all watering during the work and curing for the prescribed period after-words & finished exposed surface.

9. FOUNDATION :

9.1 TIMELY NOTICE FOR INSPECTION OF FOUNDATIONS OF WORKS TO BE COVERED UP :

The contractor shall give notice to the engineer as soon as the excavation of any portion of the site for obtaining a foundation or bottom, whether above or below water, has reached the depth and width shown in the drawings. The contractor shall also give further notice to the Engineer whenever any bottom foundation is ready for inspection and whenever it is necessary to cover up any work in respect of which Engineer desires previous inspection, so that the Engineer may inspect the same before it is covered up. Bottom of foundation should be maintained by the contractor till execution of the work without any extra cost as directed by the Engineer - in charge.

10. BRICK WORK :

10.1 All brickwork shall be done in well-burnt bricks as per East Central Railway Standard Specifications for Works and materials-2012 in cement mortar in proportion as may be specified in the drawings or as instructed by the Engineer-in charge.

10.2 All pipes clamps or other fittings as may be required shall be fixed in position as the work proceeds. Chases will have to be out in the brick walls before housing the fitting and the contractor's rate for brickwork shall be inclusive of the cost of cutting chases.

10.3 No claim for any additional, labour involved in doing the masonry work around the boards, telephone boxes etc shall be entertained.

11. ROUGH CAST/SAND FACED CEMENT PLASTER 20 MM THICK.

11.1 All brick masonry shall be thoroughly wetted and joints raked out to a depth of at least 20 mm well washed with clean fresh water to ensure a clean depth of 13 mm free from any mortar, and must be kept watered for a week before the plaster is applied if the masonry is old, otherwise the watering should be done for 2days.

11.2 Samples of rough cast/sand faced shall be got approved from Engineer-in charge before commencement of work and work shall be done strictly according to East Central Railway Standard Specifications for Works and materials-2008.

12. WATER SUPPLY AND SATINARY INSTALLATION :

12.1 For execution of sanitary installations and water supply works, the contractor shall arrange a licensed plumber and employ especially skilled artisans for these works. The work shall be executed as per East Central Railway Standard Specifications for Works and materials-2012.

12.2 The work of providing GI and/or CI pipes, as required, shall proceed along with the construction of building to avoid demolition or breaking up of masonry at a later stage.

12.3 Samples of sanitary installations and fittings such as W.C. Pans, wash basins, sinks etc. shall be submitted to the Engineer in charge for approval before supplying and fixing & shall be provided strictly in accordance with the approved samples.

12.4 G.I. pipes and fittings shall conform to BIS specifications and samples be got approved from the Engineer-in charge before using the materials in the work.

12.5 RCC pipes for sewer should conform to NP-2 class of pipe specification as per BIS. These should be tested and certified by approved testing agencies/laboratories and by the contractor, if asked, for approval of materials by the Engineer, contractor should produce certificate to the effect. Nothing extra will be paid for testing and certification by testing agency laboratory.

13. FLOORING :

13.1 Flooring shall be laid using approved quality sand and coarse aggregates and as per East Central Railway Standard specification for Works and Materials 2012. Floor shall be laid in panels and dividing strips shall be provided as per practice and agreed by Engineer-in charge. No extra payment will be made for the same.

14. ROOFING :

14.1 The roof shall be laid either with RCC or as per approved plan.

14.2 Openings for fan clamps and other fittings, connection with services shall be provided in shuttering as directed for which nothing shall be paid.

15. TESTING OF BUILDING MATERIAS :

15.1 Regular testing of building materials such as bricks, sand, aggregates, tiles, water proofing compounds, doors and windows etc. should be done.

15.2 Day to day quality control, sample testing facilities must be available at work sites.

15.3 Test cubes for concrete should be made and tested as per IS specifications.

15.4 Concrete mix as specified in the tender documents should be followed at wok site. In case of design mix, IS specifications for designing, producing, using, testing and accepting/rejecting must be followed.

15.5 Cement should be used by weight only in case of design mix concrete.

15.6 In case of cement, steel, etc. besides manufacturers' test certificates, regular independent tests to check the quality as per IS specifications should be done.

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SPECIAL OTHER CONDITIONS & SPECIFICATIONS FOR BUILDING WORK AND FOR BRIDGE WORKS.

1 Road Works:

General

Road works in colonies, approach to stations, ROB approaches and at level crossings should confirm to the relevant standards of IRC codes .

1.2Material for Structures:

For Specifications on materials "Indian Railways Unified Standard Specifications (works and materials -2010) Vol I and II" with latest amendment should be referred.

2.2 Handling & Storage of Materials

All materials shall be stored as per IS: 4082.

2.3 Piling Work:

2.3.1 Description

1. The method of installing the piles, including details of the equipment shall be submitted by the Contractor and got reviewed from the Engineer.
2. The work shall be done as per IS: 2911 except as modified herein.

2.3.2 Materials

The basic materials like cement, coarse aggregates, fine aggregates, reinforcing steel, structural steel, water and concrete admixtures shall confirm to the requirements as specified in the Clause 6: Materials for Structures of these Specifications.

2.3.3 Precast Concrete Piles

The pile should be cast in one continuous operation.

2.3.4 Bored Cast-in-situ Concrete Piles

1. Boring for Pile: IS 1493-Design of bored and cast in-situ piles should be followed.
2. Concreting for Pile: Concreting for the piles shall be done by tremie method.

3. Pile Tests / Acceptance of Pile: For acceptance of piles, vertical and lateral load, testing of piles as required will be carried out as per procedure laid down in IS:2911(Pt- IV) "Code of Practice for Design and Construction of Pile Foundation- Load test on piles."

2.4Concrete Works:

2.4.1 General

This section refers to the construction of concrete structures including concrete mix design, trial mix, testing and workmanship for concreting. Prior to the start of construction, the Contractor shall design the mix as per IS 10262 and submit to the Authority's Engineer for review, the proportions of materials, including admixtures to be used. Water- reducing admixtures (including plasticisers or super-plasticisers) may be used at the Contractor's option, subject to the review of the Authority's Engineer. Other types of admixtures shall be prohibited, unless specifically permitted by the Authority's Engineer.

2.4.2 Materials

All the materials shall confirm to the relevant IS codes.

2.4.3 Ready Mixed Concrete:

1. Ready Mixed Concrete may be used subject to prior review of the Authority's Engineer. It shall confirm to the specifications of concrete as specified herein and IS: 4926.
2. The quality of admixtures like water-reducing agent, retarders, super- plasticizers- cum retarders etc. should meet the requirement of Clause 6: Materials for Structures of these Specifications and its suitability tested as per IS:9103 at the time of finalizing the mix design.

2.4.4 Steel Reinforcement

All the materials for steel reinforcement shall confirm to the relevant IS codes.

2.4.5 Backfill Material and Approach Slab:

1. Backfill Behind Abutment, Wing Walls, Retaining Wall and Return Walls:

Behind abutments, wing walls and return walls/Retaining wall, boulder filling and backfill material shall be provided as per Code of Practice for the Design of Sub- structures and Foundations of Bridges. Boulder filling shall consist of well hand packed boulders & cobbles to thickness not less than 600 mm with smaller size towards the back Or it will be as per approved drawing.

Behind the boulder filling, backfill material shall consist of granular materials of GW,GP,SW groups as per IS:1498-1970.

1. **Transition system on approaches of Bridge (If Required)**

It will be as per approved drawings & latest guideline of RDSO or as per the approved drawings. In order to reduce impact effect and to obtain improved running, properly designed transition system as per RDSO Report no. GE-R-50 may be provided on both the approaches of non-ballasted deck bridges. One end of the approach slab may be supported on the abutment and other end on formation. Length of the approach slab shall be minimum 4 meters.

2.5Fixing RCC Land Boundary Pillars along Railway Boundary:

All the land along the track and at bridge shall be provided with pre- cast RCC Land Boundary pillar. Land Boundary pillar shall be engraved with the letters as advised by the Authority's Engineer. The Land Boundary pillars shall be fixed as per the drawings in such a way that 750mm of the total pillar height shall be exposed above the existing ground level. The exposed portion of the pillars shall also be duly painted.

3.0Deviations from the Specifications and Standards

[Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Railway Project, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]

[Specify the deviations, if any]: **Not Applicable**

[Note: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project- specific requirements.]

<u>Technical parameters for civil works for buildings :</u>

Building Works : The scope covers engineering/ design, construction and commissioning of buildings complete in all respects as per GAD of buildings provided in Schedule-R/ as per the GAD of buildings prepared and submitted by the contractor and approved by Authority Engineer. Scope covers all items, materials, components required to construct buildings complete in all respects including civil, electrical, plumbing and telecommunication works. The electrical and signal/telecommunication works shall be paid under respective heads.. The scope includes submission of proof checked civil design and drawings from reputed IIT/NIT for all building, EI huts, PSS, toilet blocks and any structure required for statutory compliance.

1) **Documents:** Contractor shall submit detailed architectural plans and Design Basis Report of the buildings for approval of the Authority followed by proof checked design by

IIT/NIT of the buildings including foundation design.

2) **Plinth level**: of buildings will be 600 mm above the adjacent road level. Plinth protection If not mentioned otherwise in the detailed drawings, plinth protection of 1.5 m width all around the building shall be provided.
3) **Earth work:** in filling in plinth and floors areas including for plinth protection etc shall be done by contractor with contractor's own earth/ excavated earth from site of good quality.

4) **Concrete work (RCC):** All plain and reinforced concrete work to be done as per IS:456 Code of Practice. Design mix concrete as approved by the Authority shall be used. Nominal mix can be permitted by the Authority only in exceptional circumstances. The cement concrete flooring, roof and other RCC/ Concrete structures are to be levelled and compacted with vibrators of suitable size and specification.

5) **Anti-termite treatment:** shall be provided as per IS 6313-2(2001), cost of which is deemed to be included in plinth area rates. The chemical shall be approved by the Authority and used as per the manufacturer's instructions/ specifications. Anti termite treatment shall be guaranteed for 10 years by the contractor.

6) **Masonry work:** The providing and constructing well burnt clay bricks of class designation as approved by the Authority. All outer and load bearing walls shall be of minimum 230 mm thickness or more as per design, in cement mortar 1:6, all partition walls shall be 115 mm thick in cement mortar 1:4. Red bricks of appropriate quality should be used, however, Fly ash bricks or cement concrete blocks (hollow/ solid) confirming to the BIS or stone masonry can be used against relevant items as mentioned in the architecture drawings with approval of the Authority/ Authority's Engineer. Hoop

reinforcement shall be provided in 115mm thick walls & rate is deemed to be included- item of brick work only. Class of bricks should be used for construction as per IS code.

7) **Plaster:** 15-19 mm thick in cement mortar 1:4 on all outer and inner walls also in ceiling as required before false ceiling. Inner walls shall be finally finished with POP/putty. Underside of the slabs shall be rendered smooth wherever required and finished with POP/putty. Fibre mesh shall be provided on the junction of RCC and brickwork rates are deemed to be included in the plaster work.

8) **Painting:** Two coats of Exterior waterproof (anti-dust protection)/ Emulsion as specified paint of 1st quality over a priming coat of Asian, Berger, Nerolac or equivalent brand and shade as approved by the Authority, on all exposed steel and wooden surfaces.

9) **Interior finish:** Two coats of 1st quality Emulsion paint of approved shade over POP coating to make the surface smooth. the 3rd coat may be done before handing over the assets.

10) **Exterior finish:** Two coats of 1st quality Exterior waterproof (anti-dust protection) of approved shade over synthetic wall putty to make the surface smooth. the 3rd coat shall be done before handing over of assets.

11) **Flooring:**1st class quality 1000 x 1000 mm or bigger size (as suggested by Authority/

Authoriy's Engineer) vitrified floor tiles conforming to IS 13630-1993 of Kajaria/ Somany/H&R Jhonson/Nitco or similar make and shade as approved by the Authority laid over minimum 20 mm thick bed of cement and sand mortar 1:4 with neat cement slurry mixed with pigment to match the shades of tiles between joints and over the base in floors over 100 mm thick CC 1:3:6 over 100 mm thick sand filling on well rammed and consolidated earth filling. On subsequent floors tiles shall be laid directly on mortar bed. 6 to 8mm mm thick glazed tiles of suitable size confirming to IS 13630-1993 of Kajaria/ Somany/H&R Jhonson/Nitco or similar make, quality and shade/ 12mm thick polished granite of best quality as approved by the Authority to be provided on walls in dado up to 1500 mm height from floor finish level or lintel level in Public use area and 600mm in other areas. All the tiles to be laid with zero gap between them. Rate to include making holes for floor jali etc.

12) **Stair Case:** 16 to 18 mm thick polished granite slabs of best quality as per approved sample in flooring, skirting, dado, pedestals, rises and treads of steps etc, of approved colour, of suitable size and design laid over a bed of cement mortar 1:3, 20mm average thick and jointing with neat cement slurry at 4.4 kg cement per sqm mixed with pigment if required to match the shade of the granite slabs including rubbing if required and making the surface even to lay the skirting/ dado with Contractor's OP cement and all other materials, labour, tools, plant, all lead and lifts etc complete as per specifications and as directed by the Authority. Granite stone shall be applied on parapet top of corridor and below railing of entrance porch, staircase, entrance steps, ramp, wash basin slab top in toilet areas and lift entrance lobby as per architecture drawings. Staircase Railing shall of stainless steel of grade SS- 304. Rate to include edge moulding, make holes for taps, wash basin, floor trap etc.

13) **Toilets:** Finished floor to be kept 25 mm below the normal floor of the building. Approved size of ceramic floor tiles conforming to IS 13630-1993 of Kajaria/ Somany/H&R Jhonson/Nitco or similar make and shade as approved by the Authority laid over 20 mm thick bed of cement and sand mortar 1:4 with neat cement slurry mixed with pigment to match the shade of tiles between joints and over the base in floors laid over 100

mm thick CC 1:4:8 over 100 mm thick sand filling on well rammed and consolidated earth filling. 6 to 8 mm thick glazed tiles of approved size conforming to IS 13630-1993 of Kajaria/ Somany/H&R Jhonson/Nitco or similar make, quality and shade as approved by the Authority to be provided on walls for full height up to ceilings over 13 mm thick cement mortar 1:2. Tiles shall be laid with zero gaps between them. Toilet sunken waterproofing- Surface to be cleaned thoroughly and all undulations & gaps to be repaired by epoxy putty. Apply two coats of tape Crete P-151 & cover with 20mm thick protecting plaster 1:4.

14) **Railings:** In Corridor Parapet/ Above Entrance Porch/ Entrance Ramp – Glass Railing shall be adopted above entrance porch or Open Terrace. And in corridor shall be combination of masonry work and Stainless steel grade SS- 304 as per architecture drawing.

15) **Door Windows & Ventilator:**

16) Door Shutter with Glass for office block: Providing and fixing 37 mm thick factory

made PVC Door shutter, styles and rails made of PVC hollow extruded printed and laminated section having overall dimension 115 mm x 37 mm with wall thickness 2 mm (± 0.2 mm) with inbuilt beading on one side, the styles and rails mitred cut and joint at corners by inserting 2 nos. PVC profile reinforcement of size 75 mm x 200 mm long with cross section size of 28 mm x 30 mm having wall thickness 2 mm (± 0.2 mm). Styles, rails and reinforcements to be fusion welded together. Only hinge side vertical style to be reinforced with PVC profile reinforcement in full length. Printed and laminated PVC lock rail of size 110 mm x 37 mm having wall thickness 2 mm (± 0.2 mm) to be welded horizontally with the vertical styles after inserting PVC profile reinforcement as in styles and rails, providing 8 mm thick toughened glass panes and inserting 2 nos. 6 mm dia bright steel rod horizontally with both sides threaded and tightened with check nuts and washers complete, all as per manufacturer's specification and direction of the Authority.

17) **Door Shutter without Glass:** Providing and fixing 37 mm thick factory made PVC Door shutter, styles and rails made of PVC hollow extruded printed and laminated section having overall dimension 115 mm x 37 mm with wall thickness 2 mm (± 0.2 mm) with inbuilt beading on one side, the styles and rails mitred cut and joint at corners by inserting 2 nos. PVC profile reinforcement of size 75 mm x 200 mm long with cross section size of 28 mm x 30 mm having wall thickness 2 mm (± 0.2 mm). Styles, rails and reinforcements to be fusion welded together. Only hinge side vertical style to be reinforced with PVC profile reinforcement in full length. Printed and laminated PVC lock rail of size 110 mm x 37 mm having wall thickness 2 mm (± 0.2 mm) to be welded horizontally with the vertical styles after inserting PVC profile reinforcement as in styles and rails, panes and inserting 2 nos. 6 mm dia bright steel rod horizontally with both sides threaded and tightened with check nuts and washers complete, all as per manufacturer's specification and direction of Authority.

18) **Door Shutter:** 35 mm thick factory made Solid panel PVC Door shutter, made out of single piece extruded solid PVC profiles, 5 mm (± 0.2 mm) thick, having styles & rails (except lock rail) of size 95 mmx 35 mm x 5 mm, out of which 75 mm shall be flat and 20 mm shall be tapered (on both side), having one side thickness of 15 mm integrally extruded on the hinge side of the profile for better screw holding power, including reinforcing with MS tube of size 40 mm X 20 mm x 1 mm, joints of styles & rails to be metered cut & joint with the help of PVC solvent cement, self driven self tapping screws &

M.S. rectangular pipes bracket of size 190 mm X 100 mm of cross section size 35 mm x 17 mm x 1 mm at each corner. Single piece extruded 5 mm thick solid PVC Lock rail of size

115 mm x 35 mm, out of which 75 mm to be flat and 20 mm to be tapered at both ends, having 15 mm solid core in middle of rail section integrally extruded, fixing the styles & rails with the help of solvent and self driven self tapping screws of 125 mm x 11 mm, including providing 5 mm Single piece solid PVC extruded sheet inserted in the door as panel, all complete as per manufacturer's specification and direction of Authority. Non decorative finish (matt finish).

19) **Door Frame:** Providing and Fixing factory made PVC door frame made of PVC extruded sections of size 75 mm x 53 mm, having wall thickness 2.0 mm (± 0.2 mm).

Both vertical sides of the frame reinforced with PVC profile of cross section size 28 mm x 30 mm x 2 mm thickness (± 0.2 mm) and 75 mm x 200 mm long, including reinforcing both ends of the top frame with PVC profile. PVC Door Frame and PVC reinforcement profile to be mitred cut, jointed and fusion welded together, including providing and fixing 3 nos. of 125 mm long stainless steel hinges to frame, fixing the frame with jamb with required nos. & sizes of anchor dash fastener, all complete as per manufacturer's specification and direction of Authority/Authority Engineer.

20) **Windows and Ventilator:** Providing and fixing factory made uPVC white colour sliding glazed window upto1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with

1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gasket, wool pile, zinc alloy (white powder coated) touch locks with hook, zinc alloy body with single nylon rollers (weight bearing capacity to be 40 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of the Authority. Three track three panels sliding window with fly proof S.S wire mesh (Two nos. glazed & one no. wire mesh panels) made of (big series) frame 116 x 45 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 1.75 sqm). MS grill needs to be provided as specified/as required over site condition.

21) **Terrace Flooring & Waterproofing:** RCC slab shall be thoroughly cleaned and junction of slab & wall to be rounded by using cement concrete. 2mm thick APP membrane to be laid by proper side & end laps using approved bitumen average 75mm thick cement concrete screed to be laid in slope and finally 300x300mm thick anti skid ceramics tiles to be laid with tiles spaces include 300mm height on walls. Otherwise Terracing details as per site or as per architecture drawings duly approved by authority to be adopted and constructed.

22) **Coping and Drip Course** as per architecture detail drawings

23) **Overhead tank:** PVC overhead tanks shall be of approved make. The scope includes making 300mm high platform with brick work & cement concrete, inlets outlets & clean out to be provided and rate is to be included in cost of tanks only.

24) **Lintel Projection (Chajja):** A minimum 450mm wide as per architecture drawings

1) **Drip courses** of approved design have to be provided wherever required as per architectural drawings.

2) False Ceiling: Providing and fixing false ceiling with 600 x 600 mm with firm laminated or mineral fibre ceiling tiles of 12 mm thickness and using powder coated standard aluminium sections hanging the same with RCC slab using 10mm dia fasteners and

GI hangers complete. **The cumulative maximum quantity will be 50 sqm in this project.**

3) **Rain water pipes:** Adequate number of rain water pipes of min 110 mm dia, 6kg/cm^ PVC of approved quality and make as approved by the Authority to be provided. Inlet of the rain water pipe to be provided with shoe and CI gratings and at the outlets necessary protection to be done to prevent erosion of soil.

4) **Manholes and junction chambers** to be constructed by Contractor as per the design by the Contractor & approved by the Authority and to be connected with RCC pipes of 200/300 mm dia. with each other and to septic tank or to existing sewerage arrangement (up to 15m from extreme outer wall of building in the direction of source to be connected, including obtaining necessary clearance from concerned authorities required for the same. In case sewerage system is not to be connected to trunk sewer as stipulated, the contractor will furnish appropriate design of septic tank to be approved by Employer and will construct the septic tank accordingly.

5) **Soil and vent pipes:** PVC pipes of min 110 mm dia and 6 kg/cm2 pressure handling capacity to be provided for soil and vent pipes including all branches of required degree, access door and other accessories as necessary for laying the pipes of approved quality and make as approved by the Authority to be provided. Before embedding the pipes under the floor the same will have to be tested against any leakage. Necessary floor traps, gully traps as essential will be provided. Storm water drain of suitable size to be provided as approved by the Authority.

6) **Wash Basins and Sink Wash basins** (Ceramic) of approved size, colour and make to be provided in ladies and gents toilet with shelf, looking glass and towel rails (CP Brass). Urinals/ Squatting pans (ceramic) of approved size and make to be provided with ceramic flushing systems as per requirement. Stainless steel/Ceramic sinks of approved size and makes to be provided in Admin Building toilet areas, Kitchen of Canteen or toilet block. All water services and sinks will be connected through bottle traps to concealed outlet pipes. All necessary CP fittings of approved make and design as per architectural drawings.

7) **Water supply:** Necessary layout for water supply distribution in the Kitchen, toilets , baths & drinking water booths to be designed by the Contractor and submitted for approval of Authority and to be connected with CPVC pipe of designed dia with the existing main water line (up to 15m from extreme outer wall of building/ extreme end of Platform) in the direction of source to be connected, including obtaining necessary clearance from concerned authorities required for the same. All internal pipes will be laid concealed in walls and tested for leakages for a minimum 12m head of water. All necessary taps, stop valves etc. of approved size and to be provided by Contractor to make the toilets , kitchens, water booths etc. functional including provision of water tank of designed capacity Moulded Polyethylene overhead tank Sintex make or equivalent in accordance with IS 12701 – 1996. This will include provision of float valve, copper/ brass rod and plastic ball with inlet, outlet, overflow, washout connections etc. for the overhead tank complete in all respects. Taps in platform toilets will be self-closing type.

8) **The Sewage system** shall be connected to the external system, with necessary manholes, traps, and septic tanks.

9.Reinforcement:

9.0 The scope includes supplying, de-coiling, straightening, cutting, bending, placing in position, binding with 1MM dia. GI binding wire of TMT bars of grade Fe-500D (for seismic zone III, IV & V, only TMT Fe-500D steel shall be used) conforming to latest standards and specification. The wastages, overlaps, coupling, welded joints, space bars, chairs and binding wire are deemed to be included in the scope of work. The reinforcement used in Pile foundation should be epoxy coated as approved by the authority engineer.

9.1 All Reinforcement Steel (TMT Bars) and Structural Steel shall be procured as per approved by RDSO specifications mentioned in BIS documents - IS:1786 and 1S:2062 respectively. Independent tests shall be conducted. wherever required, to ensure that the materials procured conform to the specifications. This steel shall be procured only from those firms, which are Established, Reliable 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, followed by production of liquid steel as per Ministry of Steel (Government of India) guidelines. Preferably it should be manufactured by well known brand like SAIL, TATA, RINL etc.

10.0 **Cement**:

10.1 The scope includes supply including all lead lift, labour, loading unloading, ascent, descent, crossing of Railway lines(s), royalty, taxes, transport (contractor's own), tools and plant in complete of ordinary Portland cement (OPC) conforming to specifications and standards with latest amendments and using the same in the works as per approved mix design. The minimum cement to be used as per IS-456.

11.Drainage system/ storm water works:

11.0The contractor shall submit a comprehensive drainage plan/ report covering water discharge from all buildings/ sheds/ utilities/ track area etc, duly adhering to relevant applicable codes/ norms/ rules/ regulations of the local/ state government/ regulatory authorities, to 'the Authority' for approval. If needed, the contractor shall obtain the necessary "No Objection" Certificate from the competent local/ state authority. The contractor shall execute all activities and commission the drainage system as per approved plan/ design including construction of garland drains, open drains, covered drains with gratings, culverts, minor bridges (under tracks), RCC pipe crossing etc. the minimum drain width is to be 600mm or as specified in document in scope / site chapter . Drainage system will mainly function in the rainy season and direct rain water from garland drains of sheds, buildings , track area etc to a collection tank with filtration arrangement. Overflow from the collection tank will be directed to the nearby water body. Collected water will be pumped to the pump house storage facility.

The scope includes all drainage provision for entire construction premises (Sheds, Building, Track

area , parallel to boundary wall , parallel to RCC / paved road -both ends) area where the water can stagnate the drainage provision should be planned.

11.1Rain Water Drain Pipe: If a separate underground drainage system is provided for surface water rainwater down pipes shall discharge in the open air over un-trapped gullies shall discharge in the open air into surface drains. (Pumps and electrical panels, cables etc are part of electrical scope of works)

12.0Sewerage system works:

12.0The contractor shall submit a comprehensive sewerage plan/ report covering sewage discharge from toilets in all buildings/ sheds/ utilities etc, canteen wash discharge etc. duly adhering to relevant applicable codes/ norms/ rules/ regulations of the local/ state government/regulatory authorities, to the Authority for approval. If needed, the contractor shall obtain the necessary "No Objection Certificate" from the competent local/ state authority. The contractor shall execute all activities and commission the sewerage system as per approved plan/ design and relevant specifications and standards. Sewage from various sources will be led to sewage treatment plants (STP), if it is not feasible to connect, septic tanks are to be provided. The mains and laterals of the external sewerage system shall be HDPE pipe of appropriate grade and diameter conforming to specifications and standards. The anticipated/ expected influent and effluent quality is as under but may change in accordance with Authority Engineer. Pumps and electrical panels, cables etc are part of electrical scope of work. The treated effluent shall be suitable for use in horticulture water for plants and fire-fighting water but should also conform to local pollution board norms in the state of Bihar.

12.1 Design of Drainage system: In designing a drainage system for building(s), the aim shall be to provide self cleansing conduits for the conveyance of soil, waste, surface or subsurface waters, and the removal of such wastes speedily and efficiently to a sewer or other outlet, without risk of nuisance and hazard to health.

12.2 Gradient and discharge: The discharge of water through a domestic drain is intermittent and limited in quantity and therefore, small accumulations of solid matter are liable to form in the drains between the building and the public sewer. There is usually a gradual shifting of these deposits as discharges take place. Gradients shall be sufficient to prevent these temporary accumulations building up and blocking the drains.

12.3.Self-cleaning velocity: Normally, the sewer shall be designed for discharging three times the dry weather flow flowing half- full with a minimum self-cleansing velocity of 0.75 metre per second. The approximate gradients which give this velocity for the sizes of pipes likely to be used in building drainage, and the corresponding discharges when flowing half-full. The sizes and slopes shall conform to Local Municipal Bye Laws.

12.4. Minimum velocity of flow: In cases, where it is practically not possible to conform to the minimum gradients, a flatter gradient may be used but the minimum velocity in such cases shall on no account be less than 0.61 metres per second.

12.5. Maximum velocity of flow: On the other hand, it is undesirable to employ gradients giving velocity of flow greater than 2.4 metres per second. Where it is unavoidable, cast iron pipes shall be used. The approximate gradients which give a velocity of 2.4 metres per second for the various sizes of pipes and the corresponding discharge.

12.6.Pump house cum sewage/ waste water treatment and recirculating plant (STP) works: The contractor shall submit a comprehensive STP cum pump house plan/ report duly adhering to relevant applicable codes/ norms/ rules/ regulations of the local/ state government/ regulatory authorities, to the Authority for approval. If needed, the contractor shall obtain a necessary no objection certificate from the competent local/ state authority. STP equipment, collection/ treatment tanks are part of the Civil scope of works. Treated water from STP will be collected in ROSTFREI (or similar) galvalume/ zincalume tanks. The contractor shall execute all activities and commission the sewerage system and STP as per approved plan/ design if in scope of work.

East Central Railway
(Construction department)

SPECIAL CONDITIONS AND SPECIFICATIONS OF CONTRACT FOR BOULDERS

1. PHYSICAL PROPERTIES OF THE BOULDER

1.1 Boulder should be hard, durable and as far as possible angular along edges, free from weathered portion of parent rocks, organic impurities and inorganic residues.

1.2 Boulder should be cubical in shape as far as possible. Individual pieces should not be flaky and should have generally flat faces will not have more than two rounded/sub rounded faces.

1.3 Minimum height of boulder stack shall be 1.2 m. Railway reserve the right to refuse the measurement of stacks as are less than 1.2 m.

1.4 In case, generator is required for night working, same shall have to be arranged by the contractor at his cost for which nothing extra shall be paid.

1.5 Before commencement of supply the contractor will get the source approved by Railway.

2. RATES AND TAXES

2.1 The contractor shall quote his rates in figures and words against each item in the Schedule of items.

2.2 The quoted rate will include the cost of material, labour & transportation charges and cost of unloading & stacking at site etc. to complete the work in all respect.

2.3 The rate quoted shall include all taxes, direct or indirect levible under the contract, state or local bodies, act or rules, octrois, tolls, royalty, cess and any other similar tax that may be prevailing at the time of submitting tender.

2.4 Any increase in statutory taxes during the currency of the contract will be reimbursed by Railway. Contractor will have to prefer claim on this account enclosing all documents in support of such reimbursement.

2.5 The contractor shall indemnify the Railway or any agent, servant or employee of the Railway against any action, claim or proceedings relating to infringement to Forest Act, Mining Act or any other relevant Act prevalent during the currency of the contract. The Contractor shall pay for any loss suffered by Railway on this account.

3. MEASUREMENTS AND PAYMENTS

3.1 The contractor will submit details as per Performa M & N of Bihar Minor Mineral Concession Rule-1972 with upto date amendments along with their bills without which no payment will be released.

3.2 Measurement of boulder will be done after the same is stacked properly at site as per the contract conditions and as per instruction of Engineer at site. While stacking creation of artificial voids in the stack is not allowed. The voids as stipulated have been assumed to be percentage of natural voids in the boulders created by stacking of boulders through manual dumping. Any attempt on the part of the Contractor to create artificial voids may lead to the Railway asking the contractor to restack the entire stack, which shall be at the contractor cost.

3.3 Determination of oversize and undersize boulders shall be done from every stack. For this purpose, 10 nos. boulders shall be selected from every 100 cum of boulders or part thereof from each stack. Selection

of boulders shall be at random. Each of boulders so selected shall then be weighed and %age oversize & undersize shall be determined in the manner illustrated below:-
For a stack of 500 cum, 50 boulders would be selected for weighment on a random basis. If the number of undersize boulders is 5, the %age of undersize boulders being supplied by the contractor would be deemed to be 10% and the payment for this shall be made at a reduced rate as shown in clause 3.4 below.

3.4 5% undersize boulders by weight are permissible for which no deduction for the payable rate shall be made. Beyond this %age, payment would be made at a reduced rate as demonstrated below:-

If the number of undersize boulders in the sample selected for weighment is 10%, the payable amount to the contractor would be A x{100 – (10-5)}/100 where A is the accepted rate as per the agreement.

3.5 Oversize boulders are allowed up to 10%. In case number of oversized boulders in the sample under test are found to be more than 10% and up to 20%, payment will be made at reduced rate of 95% as indicated in following illustration. If number of oversized boulders are found to be more than 20% then such quantity shall not be paid for as illustrated below:-

If the number of oversize boulders in the sample selected for weighment is 25%, for a stack of say 500 cum, the payable amount shall be A x 425 + A x (0.95) x 50 and no payment for 5% i.e. for 25 cum of the boulders. Similarly if this %age would have been 30% no payment would have accrued to the contractor for 10% of the total volume of the stack i.e for 50 cum out of stack of 500 cum. Determination of the size of the sample for the oversize shall be same as indicated in clause 3.3.
Note: A is the accepted rate as per the agreement.

3.6 Contractor may, at his discretion, segregate the undersize/oversize boulders as mentioned in Para 3.4 & 3.5 above and remove the same from site for their own use. If contractor fails to segregate/remove such boulders within 15 days Railway may use the same at their discretion without any payment to the contractor.

3.7 Stacking ground will be leveled to the satisfaction of the site incharge by the contractor at his cost and his clearance will be taken before stacking has commenced. Cost of making approach road to such stack (s) will also be borne by the contractor himself.

4. In cases where Mining License is in respect of areas which are part of sanctuary/reserve forest/ protected forest, a certificate of the concerned Forest Authority not below the rank of District Forest Officer should be enclosed certifying that boulders supplied to the Railway are from legally authorized source.

5. During the entire period of supply, the contractor will have to ensure that he possesses the current valid license required for proper execution of the supply contract. In case the Railway suffer and loss/damage due to violation of any rules/compliance of statutory laws the Railway will have the right to recover the said amount from the contractor.

6. The contractor will have to comply with all rules and regulations for supply of boulders and absolve Railways from any liability in this regard.

Witnesses:
1. Signature of Tenderer

2.

Dated:……..

Annex - I

(Schedule-D)

Specifications and Standards for Construction[19]

1 Specifications and Standards

All Materials, works and construction operations shall conform to the following manuals:

1.1 For civil works:

(a) Indian Railways Permanent Way Manual

(b) Indian Railway Bridge Manual

(c) Indian Railway Works Manual

(d) Indian Railway Bridge Substructure Code

(e) Bridge Rules

(f) IRS Steel Bridge Code

(g) IRS Welded bridge code

(h) IRS Fabrication & Erection of Steel Girder Bridges & Locomotive Turn Tables (B1-2001)

(i) Indian Railway Schedule of Dimensions

(j) Guidelines and specifications of RDSO regarding Steel structures and Bridge superstructures

(k) The relevant IRS Specifications referred to in the above and below mentioned documents

(l) Specifications of Works of E C Railway & CPWD

(m) In case of any contradiction in the various codal provisions, the order of precedence shall be as follows:-

a) Provisions of this Annex I.

b) IRS Codal provisions

c) IRC Codal provisions

d) IS (BIS) Codal provisions

1.2 For signalling and telecommunication works:

a) Indian Railway Signal Engineering Manual for signalling; and

b) Indian Railway Telecom Manual for telecommunication works.

c) All policy guideline issued by Railway Board, ECR HQ and RDSO which may bereferred from websites.

1.3 For Electrical Works:

a. Latest RDSO specifications/technical instructions/ drawings
b. Indian Railway Manual AC Traction volume-II part-I and Volume -II part-II
c. Manual of Standards & Specification for Railway Electrification.
d. Indian railway Standards of Dimension.
e. Standards, drawings laid down by core/zonal railways
f. Instructions issued by Railway Board/CORE/Zonal Railway as applicable for the project.
g. Indian Electricity Rules 1956.
h. Indian Electricity Act 2003.
i. BIS Specifications

[19] The contents of this Annexure-I may be suitably modified to reflect project specific requirements.

Introduction

The Materials and workmanship specification given herein under is based on RDSO Indian Railway Rules, Standard Codes, Manuals and Specifications, Indian Standards and International Standards as scheduled below. Apart from the basic data, specifications etc. all items of works shall be governed by the Codes & Specifications as detailed hereunder and as revised / corrected / amended up to the due date of submission of the Bid Proposal. The Contractor will be responsible for detailing in his specification of the standards on which his materials and workmanship will be based, and these will be of similar or higher standard than those listed below. The Contractor is required to review in the first instance the relevant Standards and Codes as mentioned. The specifications will be primarily based on the said standards to the extent that they are applicable. Some of the Standards are also mentioned in schedule–D of this agreement; in case of repetition, the latest version of standards, specification shall be deemed to be applicable.

Relevant Standards Subject to the provisions of the Agreement, all items of works shall be governed by the following Rules, Codes, and Specifications as on the bid date. In case of any contradiction in various documents mentioned above, the order of precedence shall be as follows:

1 Indian Railway Rules;

(i) Indian Railway General and Subsidiary Rules.

(ii) Indian Railway Rules for Opening New Railway Lines.

(iii) Indian Railway Standard Schedule of Dimensions for Broad Gauge.

(iv) Indian Railways Permanent way manual with ACS

(v) IRS Bridge Rules

(vi) IR Works manual

(vii) IRS welded bridge code

(viii) IR standard seismic code 2020 with ACS

(ix) IR SOD revised 2022

(x) Indian Railway AC traction Manual

2 IRS Codal Provision
3 IRC Codal Provision
4 IS Codal Provisions.

5 Provisions in other International Codes.

6 Indian Explosive Act.

7 Indian Explosive Rules.

Note:- In case of road related structures, IRC Codal provisions will prevail over IRS Codal provisions.

Indian Railway Rules, Codes and Specifications:

8 Indian Railway Brides Rules.

9 Indian Railway – Engineering Code.

10 Indian Railway Code for Practice of Plain/Reinforced and Pre- stressed concrete for general / bridge construction (Concreted Bridge Code).

11 IRS : Welded Bridge Code for steel bridge girders.

12 IRS Standard Code of Practice for design of Sub-structure & Foundation.

13 IRS: T-12 2009 Rail Specifications.

14 IRS Specifications for Steel Bridges Code.

15 RDSO Specification No. GE: IRS-2 (Final):Specification fo r mechanically produced blanketing material for railway formation including guidelines for laying.

16 Manual on the Design and Construction of Well and Pile Foundations(1985)

17 IR Standard Specification for Fusion of Welding of Rails by Alumino Thermit Welding Process 2006.

18 IRS T 29-2000 Cast Manganese Steel Crossings.

19 IRS T 39-1985 Prestressed Concrete Sleepers.

20 IRS GE: 1 June 2004 Ballast specification

21 IRS T 1966 Fish Plates and Fish Bolts.

22 IRS Fabrication and Erection of Steel Girder Bridges & Locomotive Turn Tables (BI-1979).

23 RDSO/M&C/RP-194/94 – Wiper seal & dust seal

24 RDSO drawing and specification for OHE and PSI.

Indian Road Congress (IRC) Codes and Specifications:

25 IRC: 5 Standard Specifications and Codes of Practice for Road Bridges Section – I –General features of design.

26 IRC: 6 Standard Specifications and Codes of Practice for Road Bridges – Section – II – Loads and Stresses – Seismic provisions of this standard are to be adopted for the bridge design.

27 IRC:18 Design Criteria for Pre-stress Concrete Road Bridges (Post-tensioned concrete).

28 IRC: 21 Standard Specifications and Codes of Practice for Road Bridges – Section – III –Cement concrete (Plain & reinforced).

29 IRC: 22 Standard Specifications a n d Codes of Practice for Road Bridges –Section – VI –Composite Construction.

30 IRC: 24 Standard Specifications and Codes of Practice for Road Bridges –Section V, Steel Road Bridges.

31 IRC 45: Recommendation for Estimating the Resistance of soil below the maximum scour level in the design of well foundations of

Bridges.

32 IRC: 54 – 1974 – Lateral and Vertical Clearances for Vehicular Traffic.

33 IRC: 83 (Part – III) - Standard Specifications and Codes of Practice for Road Bridges –Section – IX – Bearings Part –III, Pot, POT cum PTFE Pin and Metallic Guide Bearings.

34 IRC-78:Sub-structure for Road Bridges.

35 IRC-87: Design and erection of false work for road bridges.

36 Specifications for Road and Bridge Works issued by Ministry of Road Transport & Highways (MORTH).

37 The Manual for Construction and Supervision of Bituminous Works.

38 The Asphalt Institute Manual MS-2. SP 6, 7, 16, 21, 22, 23, 24, 34, 36, 52, 60, 70.

39 IS: 34 White lead for paints.

40 IS: 57 Red lead for paints and other purposes.

41 IS: 75 Linseed oil, raw and refined.

42 IS: 77 Linseed oil, boiled for paints.

43 IS: 102 Ready mixed paints, brushing, red lead, non-settling priming.

44 IS: 104 Ready mixed paint, brushing, zinc chrome, priming.

45 IS: 123 Ready mixed paints, brushing, finishing, semi gloss, for general purposes to Indian Colours etc.

46 IS: 280 Mild steel wire for general purposes.

47 IS: 383 Coarse and fine aggregate from natural sources for concrete.

48 IS: 432 (Part-I & Part-I) – 1982 – Mild Steel, Medium Tensile Steel Bars and Hard Drawn.

49 IS: 487 Brush, paint and varnish.

50 IS: 456 Plain and reinforced concrete.

51 IS: 516 Method of test for strength of concrete.

52 IS: 786 Conversion factors and conversion tables.

53 IS: 819 - Resistance spot welding for light assemblies in mild steel.

54 IS: 875 (Part 3) – 2015 – Code of Practice for Design Loads (Other than Earthquakes) for Buildings and Structures – Wind Loads (Second Revision).

55 IS: 887 Animal tallow.

56 IS: 975 (all 5 parts) – Design loads (other than earthquakes) for buildings and structures.

57 IS: 1024-1999 Use of Welding in Bridges and Structures subject to Dynamic Loading – code of Practice – Second Revision (Reaffirmed 1998).

58 IS: 1024 Welding in bridges and structures subject to dynamic loading.

59 IS: 1030 Grade 280-520W- Cast Steel.

60 IS: 1080-1985 Code of practice for design and construction of shallow foundations in soils (other than raft, ring and shell).

61 IS: 1199 Indian Standard Specifications for Method of Sampling and analysis of concrete.

62 IS: 1200 (all relevant parts) – Method of measurement of building and civil Engineering works.

63 IS: 1261 – 1959 – Seam Welding in Mild Steel (Reaffirmed 1998)

64 IS: 1270 Metric steel tape measure.

65 IS: 1323 – 1982 -Oxy-acctylene Welding for Structural Work in Mild Steel (Second Revision).

66 IS: 1343 Prestressed concrete.

67 IS: 1493 Design of Bored and Cast in Situ Piles Founded in Rock. - Guide lines.

68 IS: 1725-1982 Specification for soil based blocks used in general building construction

69 IS: 1323 – 1982 -Oxy-acctylene Welding for Structural Work in Mild Steel (Second Revision).

70 IS: 1343 Prestressed concrete.

71 IS: 1493 Design of Bored and Cast in Situ Piles Founded in Rock. – Guide lines.

72 IS: 1725-1982 Specification for soil based blocks used in general building construction

73 IS:1786-1985-High Strength Deformed Steel Bars & Wires for concrete Reinforcement (Third Revision).

74 IS: 1791 Batch type concrete mixers.

75 IS: 1893-2002 Criteria for Earthquake Resistance Design of Structures.

76 IS: 1904-1986 Code of practice for design and construction of foundations in soils: General Requirements.

77 IS: 1915 Steel bridge code.

78 IS: 2074 Ready mixed paint, air drying, red oxide-zinc chrome.

79 (IS: 2339 Aluminum paints for general purposes, in dual container. (ll) IS: 2386 (all 8 parts) – Tests for aggregates for concrete

80 IS: 2502 Code of practice for bending and fixing of Bars for concrete reinforcement.

81 IS: 2722 Indian Standard Specifications for Portable Swing Weight batches for concrete (Single and Double Bucket type).

82 IS: 2751 Code of Practice for Welding of Mild Steel Bars used for reinforced concrete construction.

83 IS: 2809-1972 Glossary of Terms and Symbols Relating to Soil Engineering.

84 IS: 2911 (Part I to IV) - Code of practice for design and construction of pile Foundations.

85 IS: 2974-1982 Part-I: Code of Practice for Design and Construction of Machine Foundations – Part I: Foundation for Reciprocating Type Machines.

86 IS: 3016:1965 Code of practice for Fire precaution in welding and cutting operations.

87 IS: 3025 (all 49 parts) – Methods of sampling and test for water and waste water.

88 IS: 3085 Method of test for permeability of cement mortar and concrete.

89 IS: 3400 (all 22 parts) – Methods of tests for vulcanized rubbers.

90 IS: 3502:1994-Steel Chequered Plates – Specifications (Second Revision).

91 IS: 3696:1987 (Part – I & Part-II)) Safety code for scaffolds and Ladders.

92 IS: 3764 Safety code for excavation work.

93 IS: 3955 Design and construction of well foundations.

94 IS: 4031 (all 15 parts) – Physical tests for hydraulic cement.

95 IS: 4081 Safety code for blasting and related drilling operations.

96 IS: 4082 Recommendations of stacking and storage of construction materials at site.

97 IS: 4091-1979 Code of Practice for Design and Construction of foundations for Transmission Line Towers and poles.

98 IS: 4138 – Safety Code for Working on Compressed Air.

99 IS: 4326 Earthquake Resistance Design and Construction of Building –Code of Practice.

100 IS: 4634 Methods of testing performance of batch type concrete mixers.

101 IS: 4756 – Safety Code for Tunneling Work.

102 IS:4880 (Pt.-IV) – Code of Practice for Design of Tunnel – Structural Design of Concrete Lining in Rock.

103 IS: 4880 (Pt.-V) – Code of Practice for Design of Tunnel –Structural Design of Concrete Lining in Soft Strata and Soils.

104 IS: 4880 (Pt.-VI) – Code of Practice for Design of Tunnel – Tunnel Support.

105 IS: 4926 Indian Standard Specifications for Ready Mixed Concrete.

106 IS: 5513 Vicat apparatus.

107 IS: 5515 Compaction factor apparatus.

108 IS: 5666 Etch primer.

109 IS: 5878 (Pt.-I) – Code of Practice for Construction of Tunnels–Precision Survey and Setting Out.

110 IS: 5878 (Pt.-II, Section-I) – Code of Practice for Construction of Tunnels – Underground Excavation in Rock – Drilling and Blasting.

111 IS: 5878 (Pt.-II, Section-II) – Code of Practice for Construction of Tunnels – Underground Excavation in Rock – Ventilation, Lighting, Mucking & Dewatering.

112 IS: 5878 (Pt.-III) – Code of Practice for Construction of Tunnels – Underground Excavation in Soft Strata.

113 IS: 5878 (Pt.-IV) – Code of Practice for Construction of Tunnels–Tunnel

Support.

114 IS: 5878 (Pt.-V) – Code of Practice for Construction of Tunnels– Concrete Lining.

115 IS: 5878 (Pt.-VII) – Code of Practice for Construction of Tunnels – Grouting.

116 IS: 6586 metal spraying for protection of iron steel.

117 IS: 6911 – Stainless Steel.

118 IS: 6925 Methods of test for determination of water soluble chlorides in concrete admixtures.

119 IS:7205-1974-Safety Code for erection of Structural Steel Work (Fifth Reprint July, 2001).

120 IS: 7293 Safety code for working with construction machinery.

121 IS: 7320 Concrete slump test apparatus.

122 IS: 8629 (Parts I to III) – 1977 – Protection of Iron and Steel Structures from Atmospheric Corrosion (Reaffirmed 2002).

123 IS: 9103 Admixtures for concrete.

124 IS: 10080 Vibration machine for casting standard cement mortar cubes.

125 : 10262 Concrete mix design.

126 IS: 13920 Ductile detailing of reinforced concrete structures subjected to seismic forces.

127 IS: 14268 Prestressing Strands.

128 IS: 14881:2001Methodfor Blast Vibration Monitoring – Guidelines.

129 IS: 15594 – Mechanical Vibration – Measurement of Vibration Generated Intervally in Railway Tunnels by Passage of the Trains. SP 22 (S&T): 1992 Explanatory Hand Book on codes for Earth Quake Engineering.

130 SP 70: 2001 Handbook on construction safety practices.

IS Codes for soil testing:

S. No	IS Code No.	Description
1.	IS: 2720 (all parts)	Methods of test for soils.
2.	IS: 2810	Glossary of terms relating to soils dynamics.
3.	IS: 4434	Code of practice for in-situ vane shear test for soils.
4.	IS: 4968	Method of subsurface sounding for soils. Part-I Dynamic method using 50mm cone without bentonite slurry.
5.	IS: 4968	Method of subsurface sounding for soils. Part-II Dynamic method using cone without bentonite slurry.
6.	IS:4968	Method of subsurface sounding for soils. Part III Static cone penetration test.
7.	IS: 5249	Method of test for determination of in- situ dynamic properties of soils.
8.	IS: 460	Specification of test sieves. Wire cloth test sieves.
9.	IS:460-1985 Part 2 Rev 3	Specification of test sieves. Perforated plate test sieves.
10.	IS: 460-1983 Part3 Revision 3	Specification of test sieves Part III Methods of examination of apertures of test sieves.
11.	IS: 1498- 1970 Revision 1	Classification and identification of soils for general engineering purposes.
12.	IS: 1607-1977	Methods for test sieving.
13.	IS:5421-1981 Revision 1	Glossary of terms relating to test sieves and testssieving.
14.	IS:1888-1982 Revision 2	Method of load test on soils.
15.	IS: 1892-1979	Code of practice for site investigations for foundations (With amendment no.1).
16.	IS:2131-1981 Revision 1	Method for standard penetration test for soils.(Reaffirmed 1987).
17.	IS: 2132-1972 Revision 1	Code of practice for thin walled tube samplingof soils.

18.	IS: 10074-1982	Specification for compaction mould assembly for light and heavy compaction testof soils.
19.	IS: 10077-1982	Specification for equipment for determination of shrinkage factors.
20.	IS: 10379-1982	Code of practice for field control of moisture and compaction of soils for embankment andsubgrade.
21.	IS: 10837-1984	Specification for moulds and accessories for determination of density index (relative density) of cohesion less
22.	IS: 11196-1985	Specification for equipment for determination ofliquid limit of soils- cone penetration method.
23.	IS: 11229-1985	Specification of mould assembly fordetermination of permeability of soils
24.	IS: 11209-1985	Specification for shear box for testing of soils.
25.	IS 9179-1979	Method for preparation of rock specimen for laboratory testing.
26.	IS 9143 : 1979	Method for the determination of unconfined compressive strength of rockmaterials.
27.	IS 9221 : 1979	Method for the determination of modulus of elasticity and Poison's ratio of rock materials in uniaxial compression.
28.	IS 10782: 1983	Method for laboratory determination of dynamic modulus of rock core specimens.
29.	IS 11315: Part 12 : 1992	Method for the quantitative description of discontinuities in rock mass: Part 12 Drill corestudy.
30.	IS 11315: Part 11 : 1985	Method for the quantitative description of is continuities in rock mass: Part 11 Core recoveryand rock quality.

Codes for cement:

131Ordinary Portland Cement, 33 Grade, conforming to IS:269.

132Rapid Hardening Portland Cement, conforming to IS:8041.

133Ordinary Portland Cement, 43 Grade, conforming to IS:8112.

134Ordinary Portland Cement, 53 Grade, conforming to IS:12269.

135Sulphate Resistant Portland Cement, conforming to IS:12330.

IS codes for pre-stressing steel

136Uncoated Stress relieved low relaxation strands conforming to IS:1426.

137Plain hard drawn steel wire conforming to IS: 1785 (Part I).

138High tensile steel bar conforming to IS: 2090.

139Uncoated stress relieved strands conforming to IS: 6006.

IS Codes for structural steel:

140IS: 226: Structural Steel (Standard Quality)

141IS: 808: Specifications for Rolled Steel Beam, Channel and Angle Sections.

142IS: 961: Structural Steel (High Tensile)

143IS: 1148 : Hot rolled rivet bars (upto 40mm dia) for structural purposes

144IS: 1149: High tensile rivet bars for structural purposes

145IS: 1161: Steel tubes for structural purposes

146IS: 1239: Mild Steel Tubes

147 IS: 1730: Dimension for Steel Plate, sheet and strip for structural and general engineering purposes

148 IS: 1731: Dimension for Steel flats for structural and general engineering purposes

149 IS: 1732: Dimension for round and square steel bars for structural and general engineering purposes

150IS: 1852 : Rolling and cutting tolerances for hot rolled steel products

151IS: 2062: Weldable Structural Steel

152IS: 4923: Hollow Steel sections for structural use

153IS: 8500: Weldable Structural Steel (medium & high strength qualities)

154IS: 11587: Structural weather resistant steel

IS codes for fasteners

155IS: 1363 Hexagon head bolts, screw and nuts

product grade C. 156IS: 1364 Hexagon head bolts,

screw & nuts product grade A & B.

157 IS: 1367 Technical supply conditions for threaded steel fastener (Parts 1 to 18). 158IS: 1929 Hot forged steel rivets for hot closing (12-36mm dia).

159IS: 2155 Cold forged steel rivets for hot

closing (6-16mm dia). 160IS: 3640 Hexagon fit

bolts.

161IS: 3757 High tensile

friction grip bolts. 162IS:

6623 High strength

structural nuts. 163IS:

6639 Hexagon bolls for

steel structure. 164IS:

5624 Foundation bolts.

165IS: 7002 Prevailing torque type steel hexagon lock nuts.

166IS: 5369 Plain washers and lock washers -

general requirements. 167IS: 5370 Plain washers

with outside dia = 3 X inside dia.

168IS: 5372 Taper washers for

channels (ISMC). 169IS: 5374

Taper Washers for I beam

(ISMB). 170IS: 6610 Heavy

washers for steel structures.

171 IS: 6649 Hardened and tempered washers For high strength structural bolts and nuts IS codes for welding consumables 168.1S:814 (Part 1) Covered Electrodes for Metal Arc Welding of structural steel for welding other than sheets.

172 IS: 814 (Part 2) for welding sheets.

173 IS: 1278 Filler rods and wires for gas welding.

174 IS: 1395 Low and medium alloy Steel covered electrodes for manual Metal Arc Welding.

175 IS: 3613 Acceptance Tests for wire flux combinations for submerged arc welding of structural steel.

176 IS: 7280 Bare wire electrodes for gas shielded arc welding of structural steel.

177 IS: 6419 Welding rods and bare electrodes for gas shielded arc welding of structural steel.

178 IS: 6560 Molybdenum and chromium-molybdenum low alloy steel welding rods and bare electrodes for gas shielded arc welding.

Codes for structural steel work for railway bridges

179 IRS: Steel Bridge Code.

180 IRS: Welded Bridge Code.

181 IRS: Code of Practice For Electric Welding Of Mild Steel Structures.

182 IRS: Fabrication & Erection of Steel Girder Bridges & Locomotive Turn Tables (B1- 2001).

183 IRS: Standard Specification for Classification, Testing and Approval of Metal-Arc Welding Electrodes, Serial No M.28-76.

184 IRS: Standard Specification for Classification, Testing and Approval of Submerged Arc Welding Wire-Flux Combinations for Use On Indian Railways Serial No M:39-68.

185 IRC: 22 (2008) Standard specifications and code of practice for road bridges – Section VI (Composite Construction).

186 BS: 5400-6 (1999) Steel, concrete and composite bridges- Specifications of material and workmanship, Steel.

187 IS: 800 (1984) Code of Practice for General Construction in Steel.

188 IS: 808 (1989) Dimensions for Hot Rolled Steel Beam, Column, Channel and Angle Sections.

189 IS: 814 (1991) C o v e r e d E l e c t r o d e s f o r M a n u a l M e t a l A r c Welding of Carbon & Carbon - Manganese Steel.

190 IS: 816 (1969) Code of Practice for Use of Metal Arc Welding for General Construction in Mild Steel.

191 IS: 817 (1969) Code of Practice for Training and Testing of Metal Arc Welder.

192 IS: 919 (1993) ISO System of Limits & Fits (Part 1 & Part 2).

193 IS: 1148 (1982) Hot Rolled Rivet Bars (up to 40mm) for Structural Purposes.

194 IS: 1182 (1983) Recommended Practice for Radio Graphic Examination of Fusion Welded Butt Joints in Steel Plates.

195 IS: 1363 (1992) Hexagon Head Bolts, Screws and Nuts of Product grade C (Part 1 to Part3).

196 IS: 1364 (1992) Hexagon Head Bolts, Screws and Nuts of Product Grades A & B (Part 1 to 5).

197 IS: 1367 (1991) Technical Supply Conditions for Threaded Steel Fasteners.

198 IS: 1852 (1985) Rolling & Cutting Tolerances for Hot-Rolled Steel Product.

199 IS: 2016 (1967) Plain Washers.

200 IS: 2062 (2006) Hot Roiled Low, Medium and High Tensile Structural Steel.

201 IS: 2595 (1978) Code of Practice for Radio Graphic Testing.

202 IS: 3600 (1985) Methods of Testing Fusion Welding Joints (Part 1 to Part 9).

203 IS: 3613 (1974) Acceptance Tests for Wire Flux Combinations for Submerged Arc Welding.

204 IS: 3658 (1981) Code of Practice for Liquid Penetrant Flow detection.

205 IS: 3757 (1985) High Strength Structural Bolts.

206 IS: 4000 (1992) High Strength Bolts In Steel Structures-Code of Practice.

207 IS: 4353 (1967) Recommendations for Submerged Arc Welding of Mild Steel and Low Alloy Steel.

208 IS: 4943(1968) Assessment of Butt and Fillet Fusion Welds in Steel Sheet, Plate and Pipe.

209 IS: 5334 (1981) Code of Practice for Magnetic Particle Flow Detection of welds.

210 IS: 5369 (1975) General Requirements for Plain Washers and Lock ashers. (gg) IS: 5372 (1975) Taper Washers for Channels.

211 IS: 5374 (1975) Taper Washers for I Beams.

212 IS: 6623 (1985) Specification for High Strength Structural Nuts.

213 IS: 6649 (1985) Specifications for hardening and tempering washers for high strength structural nuts.

214 IS: 6755 (1980) Double Coil Helical Spring Washers.

215 IS: 7215 (1974) Tolerances for Fabrication of Steel Structure.

216 IS: 7318 (1974) (Part I) Approval Tests for Welders When Welding Procedure Approval is not required -fusion Welding of Steel.

217 IS: 8910 (1978) General requirements of Supply of Weldable Structural steel.

218 IS: 9595 (1996) Recommendations for Metal Arc Welding of Carbon & Carbon- Manganese Steels.

Other International Codes

219 EN 1990-2002 (Eurocode – Basis of Structural Design) – (For Safety, comfort deformation including twist and deflection).

220 EN 1991-2-2003 (Eurocode 1 – Action on Structures, part 2 – Traffic Loads on Bridges)- (Natural frequency range and Loading for fatigue estimation).

221 EN 1992 – 1:2004 (Eurocode 2 – Design of Concrete Structures, Part –1 – General Rules and Rules for Buildings).

222 EN 1992 – 1-1:2004 (Eurocode 3 – Design of Steel Structures, Part 1 – 1 -1 General Rules) – (Classification of cross sections).

223 EN 1993 – 1-8:2002 (Eurocode 3 – Design of Steel Structures, Part 1 - 8 Design of Joints) – (Classification of HSFG Bolts).

224 EN 1993 – 1-9:2002 (Eurocode 3 – Design of Steel Structures, Part 1 –9 Fatigue Strength of Steel Structures).

225 EN 1993 – 2:2004 (Eurocode 3 – Design of Steel Structures, Part 2 – Steel Bridges) - (Requirements for fatigue assessment, Road and Rail Bridges).

226 EN 1994 – 2:2003 (Eurocode 4 – Design of Composite Steel & Concrete Structures, Part 2 – Rules for Bridges) – (Width of effective flange, shear connectors).

227 EN 1337-7 (March 2004) – Structural bearings – Part 7 : Spherical and Cylindrical PTFE bearings (In case of Steel Bridges)

228 UIC 774–3R–Track Bridge interaction Recommendation for calculation (for Forces due to LWR).

229 UIC 772-2R: Bearings of rail bridges.

230 UIC 774-3R Track/Bridge interaction.

पूर्वमध्यरेल
निर्माणसंगठन

GUIDELINES FOR PARTICIPATION OF JOINT VENTURE FIRMS IN WORKS TENDER.

(GCC Para -17 of April 2022)

(Applicable for value more than Rs. 10 Crore Rly Bd letter No. 2022/CE-I/CT/GCC-2022/policy 24.04.2022)

JOINT VENTURE (JV) IN WORKS TENDERS

1 **Participation of Joint Venture (JV) in Works Tender:** This para shall be applicable for works tenders wherein tender documents provide for the same.

1.1 Separate identity/name shall be given to the Joint Venture.

1.2 Number of members in a JV shall not be more than three, if the work involves only one department (say Civil or S&T or Electrical or Mechanical) and shall not be more than five, if the work involves more than one Department. One of the members of the JV shall be its Lead Member who shall have a majority (at least 51%) share of interest in the JV. The other members shall have a share of not less than 20% each in case of JV with up to three members and not less than 10% each in case of JV with more than three members. In case of JV with foreign member(s), the Lead Member has to be an Indian firm/company with a minimum share of51%.

1.3 A member of JV shall not be permitted to participate either in individual capacity or as a member of another JV in the same tender.

1.4 The tender form shall be purchased and submitted only in the name of the JV and not in the name of any constituent member. The tender form can however be submitted by JV or any of its constituent member or any person authorized by JV through Power of Attorney to submit tender.

1.4.1 Bid Security shall be submitted by JV or authorized person of JV either as:

i) Cash through e-payment gateway or as mentioned in tender document, or

ii) Bank Guarantee bond either in the name of JV, or in the name of all members of JV as per MOU irrespective of their share in the JV if the JV has not been constituted legally till the date of submission of tender.

1.5 A copy of Memorandum of Understanding (MoU) duly executed by the JV members on a stamp paper, shall be submitted by the JV along with the tender. The complete details of the members of the JV, their share and responsibility in the JV etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.

1.6 Once the tender is submitted, the MoU shall not normally be modified / altered / terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Bid Security shall be liable to be forfeited.

1.7 Approval for change of constitution of JV shall be at the sole discretion

of the Railway. The constitution of the JV shall not normally be allowed to be modified after submission of the bid by the JV, except when modification becomes inevitable due to succession laws etc., provided further that there is no change in qualification of minimum eligibility criteria by JV after change of composition. However, the Lead Member shall continue to be the Lead Member of the JV. Failure to observe this requirement would render the offer invalid.

1.8 Similarly, after the contract is awarded, the constitution of JV shall not be normally allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract conditions.

1.8.1 On award of contract to a JV, a single Performance Guarantee shall be submitted by the JV as per tender conditions. All the Guarantees like Performance Guarantee, Bank Guarantee for Mobilization Advance, Machinery Advance etc. shall be accepted only in the name of the JV and no splitting of guarantees amongst the members of the JV shall be permitted.

1.8.2 On issue of LOA (Letter of Acceptance), the JV entity to whom the work has been awarded, with the same shareholding pattern as was declared in the MOU/JV Agreement submitted along with the tender, shall be got registered before the Registrar of the Companies under 'The Companies Act - 2013' (in case JV entity is to be registered as Company) or before the Registrar/Sub-Registrar under the 'The Indian Partnership Act, 1932' (in case JV entity is to be registered as Partnership Firm) or under 'The LLP Act 2008' (in case JV entity is to be registered as LLP). A separate PAN shall be obtained for this entity. The documents pertaining to this entity including its PAN shall be furnished to the Railways before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation within 60 days of issue of LOA, contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The entity so registered, in the registered documents, shall have, inter-alia, following Clauses:

1.8.3 Joint and Several Liability - Members of the entity to which the contract is awarded, shall be jointly and severally liable to the Railway for execution of the project in accordance with General and Special Conditions of Contract. The members of the entity shall also be liable jointly and severally for the loss, damages caused to the Railways during the course of execution of the contract or due to non-execution of the contract or part thereof.

1.8.4 Duration of the Registered Entity - It shall be valid during the entire currency of the contract including the period of extension, if any and the maintenance period after the work is completed.

1.8.5 Governing Laws - The Registered Entity shall in all respect be governed by and interpreted in accordance with Indian Laws.

1.8.6 Authorized Member - Joint Venture members in the JV MoU shall authorize Lead member on behalf of the Joint Venture to deal with the contract, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV.

1.8.7 No member of the Joint Venture shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the Railway in respect of the said tender/contract.

1.8.8 A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.

1.9 Documents to be enclosed by the JV along with the tender:

1.9.1 In case one or more of the members of the JV is/are partnership firm(s), following documents shall be submitted:

1.9.1.1 A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.

1.9.1.2 A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper,

1.9.1.3 A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm.

1.9.1.4 An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

1.9.2 In case one or more members is/are Proprietary Firm or HUF, the following documents shall been enclosed:

1.9.2.1 A copy of notarized affidavit on Stamp Paper declaring that his Concern is a proprietary Concern and he is sole proprietor of the Concern OR he who is signing the affidavit on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

1.9.3 In case one or more members of the JV is/are companies, the following documents shall be submitted:

1.9.3.1 A copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement,

1.9.3.2 The copies of MOA (Memorandum of Association) / AOA (Articles of

Association) of the company

1.9.3.3 A copy of Certificate of Incorporation

1.9.3.4 A copy of Authorization/copy of Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual, to sign the tender, sign MOU/JV Agreement on behalf of the company and create liability against the company

1.9.4 In case one or more members of the JV is/are LLP firm/s, the following documents shall be submitted:

1.9.4.1 A copy of LLP Agreement

1.9.4.2 A copy of Certificate of Incorporation of LLP

1.9.4.3 A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement

1.9.4.4 A copy of Authorization /copy of Power of Attorney issued by the LLP firm (backed by resolution passed by the Partners) in favour of the individual, to sign the tender and/or sign the MOU/ JV agreement on behalf of the LLP and create liability against the LLP.

1.9.4.5 An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.

1.9.5 In case one or more members of the JV is/are Society/s or Trust/s, the following documents shall be submitted:

1.9.5.1 A copy of Certificate of Registration

1.9.5.2 A copy of Memorandum of Association of Society/Trust Deed

1.9.5.3 A copy of Rules & Regulations of the Society

1.9.5.4 A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.

1.9.6 <u>All other documents in terms of Para 10 of GCC April 2022.</u>

1.9.7 Credentials & Qualifying Criteria: Technical, financial eligibility and Bid capacity of the JV shall be adjudged based on satisfactory fulfilment of the following criteria:

1.10 Technical Eligibility Criteria ('a' or 'b' mentioned hereunder):

(a) For Works without composite components

The technical eligibility for the work as per GCC para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV'.

Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for the work as per GCC para 10.1 above, shall have technical capacity of minimum 10% of the cost of work i.e., each non-lead member of JV member must have satisfactorily completed or

substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of advertised value of the tender.

(b) For works with composite components

The technical eligibility for major component of work as per GCC para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV' and technical eligibility for other component(s) of work as per GCC para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'any member of the JV'.

Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for any component of the work as per GCC para 10.1 above, shall have technical capacity of minimum 10% of the cost of any component of work mentioned in technical eligibility criteria. i.e., each other (non- lead) member of must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of cost of any component of work mentioned in technical eligibility criteria.

Note for Para 1.10

a) *The Major component of the work for this purpose shall be the component of work having highest value. In cases where value of two or more component of work is same, any one work can be classified as Major component of work.*

b) Value *of a completed work done by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned technical eligibility criteria in the tender under consideration.*

1.10.1 Financial Eligibility Criteria

The JV shall satisfy the requirement of "Financial Eligibility" mentioned at para 10.2 of GCC April 2022. The Financial capacity" of the lead member of JV shall not be less than 51% of the financial eligibility criteria mentioned at para 10.2 GCC April 2022.
The arithmetic sum of individual "financial capacity" of all the members shall be taken as JV's "financial capacity" to satisfy this requirement.
Note: Contractual payment received by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying compliance of the above mentioned financial eligibility criteria in the tender under consideration.

1.10.2 Bid Capacity
The JV shall satisfy the requirement of "Bid Capacity" requirement mentioned at GCC para 10.3 above. The arithmetic sum of individual "Bid capacity" of all the members shall be taken as JV's "Bid capacity" to satisfy this requirement.

Annexure JV – 1

MEMORANDUM OF UNDERSTANDING [MOU] FOR JOINT VENTURE PARTICIPATION

[To be executed on non-judicial stamp paper of appropriate value in accordance with relevant stamp Act. The stamp paper is to be issued in the name of the Joint Venture Firm].

JOINT VENTURE PARTICIPATION
BETWEEN

[Indicate the name of member] having its registered office at [Indicate the address of the member] represented by their[Indicate designation/capacity e.g Manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.], Shri. [Indicate the name] aged about .....years, S/o Shri [Indicate the name of father] resident of [Indicate Address] [hereinafter known as authorized signatory of the member] in the capacity of Lead Member of the first part. **AND**

[Indicate the name of member] having its registered office at [Indicate the address of the member] represented by their[Indicate designation/capacity e.g manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.], Shri. [Indicate the name] aged about .....years, S/o Shri [Indicate the name of father] resident of [Indicate Address] [hereinafter known as authorized signatory of the member] in the capacity of the constituent member of the other part.

[In case of more than two members, include the details accordingly].

Now, the Joint Venture Firm [JV] formed by the members i.e.[Indicate name of lead member]and [Indicate name of constituent member] and[Indicate name of other constituent member] will be known as [Indicate JV firm name and address].

The expressions [Indicate name of the lead member] and [Indicate name of the constituent members], shall whatever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns, and shall collectively be referred to as **"Joint Venture Firm"** and individually as the "**Member"**

WHEREAS; President of India, acting through Ministry of Railways, East Central Railway Construction Organisation has invited Tender for "[Indicate name of work as mentioned in Notice inviting Tender]".

NOW, THEREFORE, THE MEMBERS AGREE AS FOLLOWS:

1. The **'Members'** have studied the documents along with conditions and have agreed to submit their Tender as Joint Venture [JV] Firm with free consent.

   The following documents shall be deemed to form and be read and construed as an integral part of this MOU.

   i] Notice inviting Tender,
   ii] Tender document and conditions given therein,
   iii] Any Addendum/Corrigendum issued by East Central Railway Construction organization, and

iv] The Tender for work submitted by Joint Venture Firm through Authorized member.

2. [Indicate the name of the Lead Member] shall be the **"Lead member"** of the JV Firm,for all intents and purposes having majority share [i.e 51% or more] and also Indicate the share of other constituent members in JV firm and who have also satisfactorily completed the work as per technical and financial eligibility criteria as given under **"Guidelines for participation of joint Venture Firms in works tender" at chapter 7 of tender document**.

3. The 'Members' resolve that the distribution of share of Financial, Technical, and other responsibilities of the constituent members of JV Firm is as under:

(a) [Indicate name and Address of Lead Member] **Share ....%**

Lead Member

(b) [Indicate name and Address of Constituent Member] **Share ....%**

Constituent Member

(c) [Indicate name and Address of Other Constituent Member] **Share ....%**

Other Constituent Member

4. JOINT AND SEVERAL RESPONSIBILITY

The Members undertake that they shall be jointly and severally liable to the Railways for execution of the work in accordance with General and Special Conditions of Contract. The JV members shall also be liable jointly and severally for the loss, damages caused to the Railways during the course of execution of the contract or due to non-execution of the contract or part thereof.

5. ASSIGNMENT AND THIRD PARTIES

No member of the Joint Venture firm shall have the right to assign or transfer the interest, right or liability in the contract without the written consent of the other members and that of the Railways in respect of the said tender/contract.

6. AUTHORIZED MEMBER

We, authorize [Indicate **lead member** of JV firm]**,** as **Authorized member** represented by their authorized signatory Shri. [Indicate the name] to act on behalf of the Joint Venture Firm to deal with the tender, sign the agreement or enter into contract in respect of the said tender/contract, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/ contract. However, authorized member shall not submit any such proposals, clarifications or commitments without securing clearance of other JV constituents[s].

All notices/correspondences with respect to the tender/contract would be sent by Railways **only to the authorized signatory of Authorized member at the address of JV firm**. All such notices/correspondences sent by Employer shall be legally binding on all the members of the J.V Firm.

7. GUARANTEES AND BONDS

Earnest Money Deposit and all bonds/guarantees to the Railways shall be submitted in the name JV Firm, which shall be legally binding on all the members of the J.V Firm.

8. INDEMNITY

Each member hereto agrees to indemnify the other members against its respective parts in case of breach/default of the respective part of the contract/tender of any liabilities sustained by the Joint Venture Firm.

9 For the execution of the respective portions of works, the members shall make their own arrangements to bring the required finance, plants and equipment, materials, manpower and other resources.

10. DOCUMENTS and CONFIDENTIALITY.

Each member shall maintain confidentiality regarding the information related to the tender/contract, commercial and technical information received or generated in the course of preparation and submission of the Tender.

11. ARBITRATION

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the members. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The Venue of the arbitration shall be [Indicate the name of place]. Notwithstanding settlement of any dispute among the members of the JV Firm, the JV members shall ensure satisfactory completion of awarded work as per the contract with the Railways.

12. VALIDITY

This MOU shall remain in force till the occurrence of the earliest of the following,

a. Tender submitted by the joint venture Firm is declared unsuccessful, or

b. Cancellation/shelving of the work by the Railways for any reasons prior to award of work.

c. In case, the Tender submitted by the joint venture Firm is declared successful; the validity of this MOU shall be up to the entire period of completion [inclusive of period of extension, if any] including maintenance period.

13. This MOU is drawn in ……number of copies with equal legal strength and status. One copy is held by [Indicate name of lead member] and the other by [Indicate name of constituent member] and [Indicate name of other constituent member] and one copy submitted with the tender to Railways.

14. This MOU shall in all respects be governed by and interpreted in accordance with Indian Laws.

15. NOTICES/CORRESPONDANCE

All Notices/Correspondence by Railways in writing shall be sent by Fax, by registered post or commercial courier or Email.

[Indicate name of authorized signatory of authorized member, name and address of JV Firm with Fax number and Email]

16. **JV Agreement**.

On issue of LOA (Letter of Acceptance), the JV entity to whom the work has been awarded, with the same share holding pattern as was declared in the MOU/JV Agreement submitted along with the tender, shall be got registered before the Registrar of the Companies under 'The Companies Act - 2013' (in case JV entity is to be registered as Company) or before the Registrar/Sub-Registrar under the 'The Indian Partnership Act, 1932' (in case JV entity is to be registered as Partnership Firm) or under 'The LLP Act 2008' (in case JV entity is to be registered as LLP). A separate PAN shall be obtained for this entity. The documents pertaining to this entity including its PAN shall be furnished to the Railways before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation within 60 days of issue of LOA, contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract.

17. We, the members of JV Firm shall furnish along with the tender, requisite documents as mentioned under para of GCC [as the case may be] of the Guidelines for Participation of J.V. firms in works tender.

18. Declaration

It is certified that we are not blacklisted or debarred by the Railways or any other Ministries/Departments/PSU [Public Sector Undertaking] of the Govt. Of India/State Govt. From participation in tenders /contracts on the date of opening of Tender. Even no criminal case is pending either in our individual capacity or as a member of the JV Firm in which we were/are members. We have not suppressed any facts. If it is found that member or JV firm has suppressed any facts then Railway will be at liberty to take any penal action as deem fit.

IN WITNESS WHEREOF THE MEMBERS, have executed this MOU on [Indicate day, month and year].

[Indicate name of authorized signatory] **[Indicate name and address of lead member]** **[Seal]**	**[Indicate name of authorized signatory]** **[Indicate name and address of constituent member][Seal]**

Witness:

1..... [Name and Address]

2..... [Name and Address]

Annexure JV - 2

JOINT VENTURE AGREEMENT FOR JOINT VENTURE PARTICIPATION

[The J.V. Agreement to be executed on non-judicial stamp paper of appropriate value, in accordance with relevant stamp Act. The stamp paper is to be issued in the name of the Joint Venture Firm and should not be more than six months old from the date of execution of the J.V. Agreement, on it]

JOINT VENTURE AGREEMENT

BETWEEN

[Indicate the name of member] having its registered office at [Indicate the address of the member] represented by their [Indicate designation/capacity e.g Manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.], Shri. [Indicate the name] aged about .....years, S/o Shri [Indicate the name of father] resident of [Indicate Address] [hereinafter known as authorized signatory of the member] in the capacity of Lead Member of the first part.

And

[Indicate the name of member] having its registered office at [Indicate the address of the member] represented by their [Indicate designation/capacity e.g manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.], Shri. [Indicate the name] aged about .....years, S/o Shri [Indicate the name of father] resident of [Indicate Address] [hereinafter known as authorized signatory of the member] in the capacity of the constituent member of the other part.

[In case of more than two members, include the details accordingly].

Now, the Joint Venture Firm [JV] formed by the members i.e.[Indicate name of lead member]and [Indicate name of constituent member] and[Indicate name of other constituent member] will be known as [Indicate JV firm name and address].

The expressions [Indicate name of the lead member] and [Indicate name of the constituent members], and (Indicate name of other constituent members) shall whatever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns, and shall collectively be referred to as **"Joint Venture Firm"** and individually as the "**Member"**

1. WHEREAS; President of India, acting through Ministry of Railways, **East Central Railway Construction organization Danapur I unit** has invited Tender for "[Indicate name of work as mentioned in Notice inviting Tender]".

And Whereas, the above members to the Joint Venture Firm have submitted the tender in the name of the said JV Firm formed as per the MOU signed on dated..... and whereas the said tender has finally been accepted by the Railways vide Letter Of Acceptance No.....dated....., we [Indicate name of the lead member],and (Indicate name of constituent members) and [Indicate name of the other constituent members], herewith sign the above formal JV agreement for registration of the above joint venture Firm viz[Indicate JV firm name and address] and for entering into contract Agreement with the Railway.

2. NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

The following documents shall be deemed to form and be read and construed as an integral part of this J.V. Agreement.

i] Notice inviting Tender,

ii] Tender document and tender conditions given therein,

iii) Any Addendum/Corrigendum issued by East Central Railway

iv) MOU signed on……by us.

v) Tender submitted on our behalf by the Authorized Member.

vi] Letter of Acceptance issued by Railways.

3. The 'Members' have studied the documents, JV guidelines and have agreed to participate in submitting the 'Tender' jointly; signed the JV MOU and submitted the tender accordingly.

4. [Indicate the name of the Lead Member] shall be the **"Lead member"** of the JV Firm, for all intents and purposes having majority share [i.e 51% or more] and also Indicate the share of other constituent members in JV firm and who have also satisfactorily completed the work as per technical and financial eligibility criteria as given under the **"Guidelines for participation of joint Venture Firms in works tender" at chapter 7 of tender document**.

5. We, authorize [Indicate **lead member** of JV firm]**,** as **Authorized member** represented by their authorized signatory Shri. [Indicate the name] to act on behalf of the Joint Venture Firm to deal with the contract, sign the agreement or enter into contract in respect of the said tender/contract, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/ contract.

All notices/correspondences with respect to the tender/contract would be sent by Employer [Railways] **only to the authorized signatory of Authorized member at the address of JV firm**. All such notices/correspondences sent by Railway shall be legally binding on all the members of the J.V Firm.

6. The 'Members' resolve that the distribution of share of Financial, Technical, and other responsibilities of the constituent members of JV Firm is as under:

(a) [Indicate name and Address of Lead Member] **Share ….%**
Lead Member

(b) [Indicate name and Address of Constituent Member] **Share ….%**
Constituent Member

(c) [Indicate name and Address of Other Constituent Member] **Share ….%**
Other Constituent Member

7. The constitution of JV firm shall not be altered during the currency of the contract except when modification become inevitable due to succession laws etc. provided that the minimum eligibility criteria are not got vitiated. Failure to observe this stipulation shall be deemed to be breach of contract, which will entitle the Railway to take all consequential action as per contract conditions or as deem fit.

8. JOINT AND SEVERAL RESPONSIBILITY

The Members undertake that they shall be jointly and severally liable to the Railways for execution of the work in accordance with General and Special Conditions of Contract. The JV members shall also be liable jointly and severally for the loss, damages caused to the Railways during the course of

execution of the contract or due to non-execution of the contract or part thereof. The members solemnly affirm and declare that every possible care will be taken by them for ensuring satisfactory execution and completion of the work awarded under the contract.

9. ASSIGNMENT AND THIRD PARTIES

No member of the Joint Venture firm shall have the right to assign or transfer the interest, right or liability till completion of contract. If it is inevitable due to forced circumstances then it cannot be done without the written consent of the other members and that of the Railways in respect of the said tender/contract but in any case, contract has to be completed.

10. GUARANTEES AND BONDS

All bonds/guarantees e.g Performance Guarantee, Bank Guarantee etc. to the Railways shall be submitted by the JV Firm as per tender conditions, only in the name of J.V Firm.

11. INDEMNITY

Each member hereto agrees to indemnify the other members against its respective parts in case of breach/default of the respective part of the contract/tender of any liabilities sustained by the Joint Venture Firm.

12. USE OF MACHINERY, INSTRUMENT, LABOUR FORCE etc.

For the execution of the respective portions of works, the members shall make full arrangements to bring the required finance, plants and equipment, materials, manpower and other resources. However, the members here to undertake that whatever the machinery, instruments, labour force, [including unskilled, skilled, inspectors, Engineer etc.] they possess at the time of entering into Joint Venture Agreement or which subsequently shall come in their possession and if such machinery, instruments, labour force is required for the speedy and efficient execution of any portion of the work, the member/members having the control over the said machinery, instruments, labour force etc. without having any regard to their share of profit and loss agreed to between the members in Joint Venture Agreement shall hand over the same which shall be placed at the disposal of the other member actually executing that portion of the work at mutually agreed terms for the purpose of execution of the contract without any hindrance and obstacle

13. DOCUMENTS and CONFIDENTIALITY.

Each member shall maintain confidentiality regarding the information related to the tender/contract, commercial and technical information received or generated in the course of preparation and submission of the Tender and execution of contract.

14. ARBITRATION

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the members. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The Venue of the arbitration shall be [Indicate the name of place]. Notwithstanding settlement of any dispute among the members of the JV Firm, the JV members shall ensure satisfactory completion of awarded work as per the contract with the Railways.

15. DURATION OF JOINT VENTURE AGREEMENT

It shall be valid during the entire currency of the contract including the period of extension if any and the maintenance period after the work is completed and till Security Deposit is released.

16. NOTICES/CORRESPONDANCE

All Notices/Correspondence by Railways in writing shall be sent by Fax, by registered post or commercial courier or email.

[Indicate name of authorized signatory of authorized member, name and address of JV Firm with Fax number and email]

17. Governing Laws: The J.V. Agreement shall in all respect be governed by and interpreted in accordance with Indian Laws.

Declaration:-

It is certified that we are not blacklisted or debarred by the Railways or any other Ministries/Departments/PSU[Public Sector Undertaking] of the Govt. of India/State Govt. from participation in tenders /contracts on the date of opening of Tender. Even no criminal case is pending either in our individual capacity or as a member of the JV Firm in which we were/are members. We have not suppressed any facts. If it is found that member or JV firm has suppressed any facts then Railway will be at liberty to take any penal action as deem fit.

IN WITNESS WHEREOF THE MEMBERS, have executed this JV Agreement on

[Indicate day, month and year]

[Indicate name of authorized signatory] **[Indicate name and address of lead member]** **[Seal]**	**[Indicate name of authorized signatory]** **[Indicate name and address of constituent member]** **[Seal]**

Witness:

1 ..... [Name and Address]

2 ..... [Name and Address]

Place :

Date :

[The J.V. Agreement should be got registered as per clause 17.11. of GCC 2022

पूर्व मध्य रेल
निर्माण संगठन
मुख्य प्रशासनिकअधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

E-Tender No. ECR-CON-DNR-I-01-26-27

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

(Bill of quantities)
[Schedule of items [Rates to be quoted in this rate sheet only]

S.No.	Description of work	Basic Cost	Escalation	Estimated Cost	Rate	
					In fig	In words
1	2	3	4	5	6	7
Schedule: A-I (N.S item)(Ward Robe, Doors & other Hardware works)					**Rate(%above/below/at par)**	
1	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- A-I (NS item)	14258820.22	0.00%	14258820.22		
Schedule: A-2 (NS item) (Fire Fighting works)					**Rate(%above/below/at par)**	
2	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- A-2 (NS item)	9620933.26	0.00%	9620933.26		
Schedule: A-3 (NS item)(Special type 'Bathroom Accessories')					**Rate(%above/below/at par)**	
3	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- A-3 (NS item)	1417746.86	0.00%	1417746.86		
Schedule: A-4 (NS item)(Special type of doors, Glazed wall paneling etc.)					**Rate(%above/below/at par)**	
4	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- A-4 (NS item)	1296688.25	0.00%	1296688.25		
Schedule: A-5 (NS item)(Running track)					**Rate(%above/below/at par)**	
5	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- A-5(NS item)	7909936.65	0.00%	7909936.65		
Schedule-B-I (Earth Work, Formations & Rehabilitation)					**Rate(%above/below/at par)**	
5	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- B-I (USSOR-21)	21551130.30	-6.18%	20219270.45		
Schedule D-1, (CARRIAGE OF MATERIAL)					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-I (DSR-2021)	370170.00	-26.00%	273925.8		

DEEPAK KUMAR Digitally signed by DEEPAK KUMAR Date: 2026.06.18 13:20:06 +05'30'
SUDHIR KUMAR SINGH Digitally signed by SUDHIR KUMAR SINGH Date: 2026.06.18 13:30:14 +05'30'
PRATEEK RASTOGI Digitally signed by PRATEEK RASTOGI Date: 2026.06.18 13:38:00 +05'30'

Schedule D-2 (Earth work)					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-2 (DSR-2021)	7405504.60	-26.00%	5480073.4		
Schedule D-3 (Masonary Work					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-3 (DSR-2021)	23657306.40	-26.00%	17506406.74		
Schedule D-4 (Cement concrete, Reinforced cement concrete, Flooring, Roofing, Finishing, Dismantling & Demolishing.					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-4 (DSR-2021)	149499179.70	-26.00%	110629393.00		
Schedule D-4 (a) Steel Reinforcement					**Rate(%above/below/at par)**	
2	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-4(a) (DSR-2021)	63750115.00	-26.00%	47175085.1		
Schedule D-5 (Cladding work, Wood and PVC work, Repair to Building)					**Rate(%above/below/at par)**	
3	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-5 (DSR-2021)	13743574.85	-26.00%	10170245.39		
Schedule D-6 (Steel work, Aluminium work, Structural glazing Aluminum composite panel)					**Rate(%above/below/at par)**	
4	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-6 (DSR-2021)	7791888.15	-26.00%	5765997.23		
Schedule D-7 (Road Work)					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-7 (DSR-2021)	24213876.30	-26.00%	17918268.46		
Schedule D-8 (Sanitary installations, Water supply , Drainage)					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-8 (DSR-2021)	5018828.4	-26.00%	3713933.02		
Schedule D-9 (Pile work)					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-9 (DSR-2021)	51303225.80	-26.00%	37964387.09		
Schedule D-10 (Water proofing, Rain water harvesting & tube wells, Conservation of heritage building, New Technologies and Materials					**Rate(%above/below/at par)**	
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-10 (DSR-2021)	3643108.25	-26.00%	2695900.11		

DSR 2020 (HORTICULTURE)					**Rate(%above/below/at par)**
	Overall percentage increase/decrease over the basic rates of item under annexure of Schedule- D-10 (DSR-2020)	2923632.70	-26.00%	2163488.2	
Schedule :-G (Unforeseen items)					**Rate(%above/below/at par)**
	Lump sum (Any other items of ECR's USSOR-2021, DSR -2021& DSR 2020) edition with up to date correction slip which are not covered by the item of Schedule B-1,D-1,D-2,D-3,D-4,D-5,D-6,D-7,D-8,D-9 & D-10.	5000000.00	0.00%	3700000.0	
	Total	**414375665.69**		**319880499.210**	

1.Rates shall have to be quoted as percentage above or below or at par for each schedule separately. Tenderers must not quote item wise rates. In case any tenderer quotes unified percentage for each schedule and also quotes item wise rates against individual item, no cognizance would be taken for the item wise rates quoted by the tenderers. However, Railways reserves their right to cancel any tender wherein item wise rates have been quoted.

2.If any tenderer(s) wishes to give any rebate on the above rates quoted by him, the same shall be quoted by him in schedule 'D' attached. Rebate offered, shall apply in the above schedules.

Witness:-

1 Signature of tenderer

2

Dated:_____

Annexure-E

पूर्व मध्य रेल
निर्माण संगठन
मुख्य प्रशासनिकअधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

Schedule – 'D'
[REBATE]

E-Tender No. ECR-CON-DNR-I-01-26-27

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

I/We offer general rebate of---------- % (In figures) ----------
---------- % (In words) as lump sum rebate on items of all schedule.

NOTES:

1. If any tenderer wishes to give any rebate on the rates quoted by him, the same can be filled by him in this schedule.
2. It is to be noted that such rebate if offered shall apply on the rates quoted for all items in the schedule of tender documents. Such a rebate shall be totally unconditional.
3. In case a tenderer does not wish to give any rebate he should write 'NIL' in this schedule, In case nothing has been filled in by the tenderer in this schedule, it will treated as 'NIL' and shall be so recorded in the blanks above at time of opening of the tender by the officials opening the tenders.
4. If any tenderer gives any type of conditional rebates, such rebate shall not be considered for evaluation of tender.

Witness: -
1 Signature of tenderer
2

Dated:_____

DEEPAK KUMAR Digitally signed by DEEPAK KUMAR Date: 2026.06.18 13:20:59 +05'30'

SUDHIR KUMAR SINGH Digitally signed by SUDHIR KUMAR SINGH Date: 2026.06.18 13:30:52 +05'30'

PRATEEK RASTOGI Digitally signed by PRATEEK RASTOGI Date: 2026.06.18 13:38:33 +05'30'

पूर्व मध्य रेल
निर्माण संगठन
मुख्य प्रशासनिकअधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule: A-I (N.S ITEM)(Ward Robe, Doors & other Hardware works)						
Sl. No.	**NS item**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	NS-01	Supplying, Manufacturing and installing Customized wardrobe in the space available (Height = 2600 ±250mm; Width = 1200 to 2100mm; depth = 600 ±200mm) as per drawings/design of Railway, with following description: (i) Ply board 18 mm thick, 'Century' or 'Green' water-proof for carcass/frame and shutters; (ii) Ply board 6 mm thick, 'Century' or 'Green' water-proof for back wall cover (iii) Sunmica 0.8mm thick laminate, 'Safe decor' or 'Timex' for finishing entire inner surface of walling/partition. (iv) Sunmica 1.0mm thick laminate, 'Safe decor' or 'Timex' for front exterior finish. (v) Drawers with Telescopic side channels 20" long (vi) One S. S. pipe (20mm dia, 900mm or longer as per space) for hangers. (vii) 'Hettich' or 'Ebco'	Sqm	15162.74	700.0	10613918.0

		make S. S. finish handles (200mm for main door shutters, 125mm for small shutters) Drawer knob/Deep handle, Concealed hinge etc. (viii) Other hardware viz. Aluminum Tower bolt 250mm, screws and other fittings as per requirement. (ix) Edge binding with 22mm wide PVC edge binding tape (Rehau make).				
2	NS-02	Providing 150mm wide wall-paneling outer border of above wardrobe with Ply board 18 mm thick, 'Century' or 'Green' water-proof and Sunmica 1.0mm thick 'Safedecor' or 'Timex', including all fittings & consumables etc.	Sqm	5584.82	250.0	1396205.0
3	NS-03	Supplying, Manufacturing and installing Customized Kitchen cabinet in the space available (Depth of cabinet = 550 ±100mm), as per drawing and design provided by Railway: (i) Ply board 18 mm thick, 'Century' or 'Green' water-proof for carcass/frame and shutters; (ii) Sunmica 0.8mm thick laminate, 'Safedecor' or 'Timex' for finishing entire inner surface of walling/partition. (iii) Sunmica 1.0mm thick laminate, 'Safedecor' or 'Timex' for front exterior finish. (iv) Drawers with Telescopic side channels 20" long (v) 'Hettich' or 'Ebco' make S. S. finish handles	Sqm	14601.93	154.0	2248697.22

		(200mm for main door shutters and drawers), Concealed hinge etc. (vi) Other hardware viz. screws and other fittings as per requirement.				
		Sub- total (A-1) amount Rs.				14258820.22
		% Escalation	0.00%			0.00
		Net total Amount Rs.(A-1)				14258820.22

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मुख्य प्रशासनिकअधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule: A-2 (N.S ITEM) (Fire Fighting works)						
Sl. No.	**NS item**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1		Supplying, laying, jointing, testing and commissioning of heavy gauge M.S pipes as per relevant IS: 1239 with special accessories like trees, elbows, flanged joints rubber insertion nuts & bolts including earth work excavating and treating under ground pipe with two coats of tarcoal hot enamel paint and wrapping with bituminised 4mm th COATAK reinforced fiber glass tissue complete in all respects as per ISI 10221. (Underground)				
1(a)	NS-01	100 mm dia	Metre	1755.5	89.0	156239.5
2	NS-02	Providing and fixing gun metal single headed hydrants with flanged inlet with 63mm female instantaneous outlet complete with male blank caps. Chains conforming to IS:5290 type A with stainless steel orifice plate to keep the pressure not more than 3.5 kg/sq.cm at any point.	Each	9508.92	30.0	285267.6
3	NS-03	Providing 63mm (2 ½)" dia 30m long reinforced rubber lined hose pipe conforming to IS:636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.	Each	10971.85	20.0	219437.0

4	NS-04	Providing and fixing first aid hose reel full swinging type with 40 meter long 20mm dia rubber lined Dunlop pipe with shut off nozzle of 5mm dia. The hose reel conforming to IS:884-1969 and hose tubing to IS:1532 complete as required including 25mm dia M.S. pipe connection from riser to hose reel with all sockets, nipples, elbows and 25mm dia full way valve as required.	Each	23449.03	35.0	820716.05
5	NS-05	Providing and fixing gunmetal branch pipe with 20mm dia nozzle conforming to IS:903. Suitable for installation connections to hose coupling etc. as required.	Each	5412.77	35.0	189446.95
6	NS-06	Providing and fixing weather proof standard hose cabinet (900mmx600mmx400mm) out door type suitable for accommodating yard hydrants made of 1.5mm thick M.S. sheet having central opening glazed door including necessary locking arrangements, painting one coat of primer and two coats of postal red enamel paint suitable for housing 2 Nos. canvas hose pipe and branch pipe. (The cabinet shall be floor mounted on suitable raised platform). The shutters are to be lockable type. The works "hose cabinet" to be painted on the box.	Each	6144.24	25.0	153606
7	NS-07	Supplying and installing cylindrical type air vessel of 250mm dia, 1.2m high fabricated out of 8mm thick MS plate suitable for 7kg/sqcm. working pressure complete with air release valve, safety valve, pressure gauge etc. as required. The air vessel shall be continuous welded construction and painted with two coats of	Each	28765.26	30.0	862957.8

		Postal red enamel outside over a coat of primer and Epoxy paint inside.				
8		Providing and fixing C.I. foot valves including nuts, bolts, washers 3mm thick insertion rubber gasket including matching flanges table "E" in all respects.				
8(a)	NS-08	100mm dia	Each	10647.08	8.0	85176.64
9	NS-09	Providing and fixing 25mm dia gunmetal full way valve heavy quality tested to 21kg/cm2.	Each	849.94	7.0	5949.58
10	NS-10	Supplying, fitting & commissioning manually operated fire alarm system with Agni or similar make 8 zone fire alarm main indicator control panel, ETRL tested, 8 fire hooters & manual call points, all fittings like wiring material, PVC pipe, bend, Tee, Sidel etc complete all respect.	Set	190880.97	2.0	381761.94
11	NS-11	Supplying, fixing, testing and commissioning of butterfly valve PN 1.6 with Bronze/Gunmetal seal duly ISI marked complete with nuts, bolts, washers, gaskets, confirming to IS 13095 of size 100/150 mm dia.	Each	13166.22	8.0	105329.76
12	NS-12	Supplying, fitting and fixing of 'ABC type' Fire Extinguisher as per IS: 15683, ISI marked, of capacity 04 Kg, Brand-SUMAX/ FIRONIL/VINTEX/FIRE FITE, as per manufacturer's recommendation or as per direction of site-in-charge.	Each	6251.22	15.0	93768.3
13		Supplying of electric driven fire pump suitable for automatic operation consisting of the following (as per CPWD specification Part - V - 1985 for Fire Fighting and its amendments).				

13(a	NS-13	Fire pump (Submersible Mono block) Pump set with bronze impeller, CI casing centrifugal having a capacity of 2280 ltrs/minute against a total head of 50 meters etc.	Set	114662.50	8.0	917300
14	NS-14	Installation, testing and commissioning of item above.	Set	9680.70	8.0	77445.6
15	NS-15	Supplying of diesel engine driven fire pump suitable for automatic operation consisting of the following (as per CPWD specifications Part-V-1985) Vibration dumping arrangement with cushy foot mounting as required.	Set	346230.25	3.0	1038690.75
16	NS-16	Installation, testing and commissioning ofitem 2 above including making foundation as per manufacturer's recommendation	Set	19361.40	3.0	58084.2
17	NS-17	Supplying of electric driven fire pump suitable for automatic operation consisting of the following (as per CPWD specification Part - V - 1985 for Fire Fighting and its amendments).Fiuid light leakproof motor suitable for operation on 320/440V,AC supply filled with oil/water for effictive cooling with synchronous speed 3000/2900 RPM and flexible coupling .The pump motor should conform to IS:325-1978	Set	53140.51	7.0	371983.57
18	NS-18	Installation, testing and commissioning of item 4 above including making foundation as per manufacturer's recommendation	Set	5163.04	8.0	41304.32
19	NS-19	Supply, installation, testing and commissioning of main control panel fabricated from 2mm th. MS sheet (powder coated) installed in hasement for main pump, jockey pump and diesel engine driven pump comprising of one	Set	184000.00	7.0	1288000.0

		TP & NL 100 amp MCCB etc.				
20	NS-20	Supply, installation, testing and commissioning of main control panel fabricated from 2mm th. etc.	Set	11500.00	3.0	34500.0
21	NS-21	Supplying, laying jointing, testing and commissioning of heavy guage M.S. pipes 100 mm dia as per relevant IS: 1239 with special accessories like tees, elbows, flanged joints, rubber insertion nuts & bolts etc.	Mtr	919.89	20.0	18397.8
22	NS-22	Providing and fixing gun metal single headed bydrants with flanged nlet with 63mm female instantaneous outlet complete with male blank caps, chains conforming to IS: 5290 type A with stainless steel orifice plate to keep the pressure not more than 3.5 kg/sq cm at any point.	Each	3989.63	4.0	15958.52
23	NS-23	Providing 63mm (2.5)" dia 15m long reinforced rubber lined hose pipe conforming to IS: 636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.	Each	3444.76	15.0	51671.4
24	NS-24	Providing and fixing first aid hose reel full swinging type with 40 meter long 20mm dia rubber lined Dunlop pipe with shut off nozzle of 5mm dia. The hose reel conforming to IS: 884-1969 and hose tubing to IS: 1532 complete as required.	Each	16029.75	7.0	112208.25
25	NS-25	Providing and fixing gunmetal branch pipe with 20mm dia nozzle conforming to IS: 903. Suitable for installation connection to hose coupling etc. as required.	Each	1119.24	8.0	8953.92
26	NS-26	Providing and fixing the 150mm dia four way fire brigade connection with flange joints complete	Each	12669.14	5.0	63345.7

27	NS-27	Providing and fixing weather proof standard hose cabinet (900mm x 600mm x 400mm) out door type suitable for accommodating yard hydrants made of 1.5mm thick M.S. sheet having central opening mazed door including necessary locking arrangements etc.	Each	2553.33	8.0	20426.64
28	NS-28	Supplying and installing cylindrical type air vessel of 250mm dia, 1.2m high fabricated out of 8mm thick MS plate suitable for 7kg/sqcm. Working pressure complete with air release valve, safety valve, pressure guage etc.	Each	19366.17	6.0	116197.02
29		Providing nd fixing C.I. double flanged sluice valves rated to PN 1.6 with C.I. Wheel bolts, nuts, washers 3mm thick insertion rubber gasket including matching flanges table E, complete.				
29(a)	NS-29	100mm dia	Each	13944.12	20.0	278882.4
30		Providing and fixing C.I. foot valves including nuts, bolts, mm thick compressed asbestos gasket complete and companion flange in all respects				
30(a)	NS-30	100mm dia	Each	7278.77	35.0	254756.95
31	NS-31	Providing and fixing 25mm dia gunmetal full way valve heavy quality tested to 21 kg/cm2	Each	581.03	30.0	17430.9
32		Constructing masonry chamber 60x60x75 cm, inside with 75 class designation brick work in cement mortar 1:5 (1 cement 5 fine sand) for sluice valve, with C.I. surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) etc.				

32(a)	NS-32	With F.P.S. bricks	Each	2931.45	16.0	46903.2
33	NS-33	Providing & Fixing MS. Black steel pipe (Medium Class-B) Conforming to IS 1239/3589 with cutting, fabrication, welding etc at 1 proper location.Including cutting and making good the wall, floor, ceiling or any surface etc Cost of accessoriws and primer & painting will be paid separately. a) 80mm dia.	Mtr	2003.00	120.0	240360.0
34	NS-34	Providing & Fixing MS. Black steel pipe (Medium Class-B) Conforming to IS 1239/3589 with cutting, fabrication, welding etc at 1 proper location. Including cutting and making good the wall, floor, ceiling or any surface etc Cost of accessoriws and primer & painting will be paid separately.b)50 mmdia	Mtr	1230.00	15.0	18450.0
35	NS-35	Providing & Fixing MS. Black steel pipe (Medium Class-B) Conforming to 15 1239/3589 with cutting, fabrication, welding etc at 1 proper location.Including cutting and making good the wall, floor, ceiling or any surface etc Cost of accessoriws and primer & painting will be paid separately. c) 25mm dia	Mtr	694.00	10.0	6940.0
36	NS-36	CI Butterfly valve (wafer type) with counter flange & nut bolts. 80 mm dia	Each	5579.00	5.0	27895.0
37	NS-37	CI NRV valve (wafer type) with counter flange & nut 3 bolts	Each	5007.00	5.0	25035.0
38	NS-38	MS Band 80mm dia	Each	959.00	5.0	4795.0
39	NS-39	MS Band 50mm dia	Each	601.00	5.0	3005.0
40	NS-40	Ms Tie Rod & Clamp	Each	858.00	5.0	4290.0
41	NS-41	MS Socket 25 mm	Each	186.00	5.0	930.0
42	NS-42	MS Elbow 25mm	Each	186.00	5.0	930.0
43	NS-43	Providing & fixing quartzoid bulb pendant spinkler 68 C along with necessary attachment.	Each	429.00	5.0	2145.0

44	NS-44	Monoblock pump (Kiloskar make end suction model cphm 32/30 in ci-casing & ci-impeller, m seal fitted, 45 c8-shaft sleev-ss440 dully coupled with lubi/crompton make elect motor 12.5HP/5.5 KW 900ipm, 48 head 3 phase, tefc type on ms fabricated common base frame coupling with duard with avm pads Havels Make panel with voltmeter+ pressure switch and wire including of installation of pump etc.complete job	Each	218812.00	5.0	1094060.0
		Sub- total amount Rs.				**9620933.26**
		% Escalation	**0.00%**			**0**
		Net total Amount Rs.(Sch.A-2)				**9620933.26**

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Schedule: A-3 (Special type 'Bathroom Accessories')						
Sl. No.	**NS item**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	NS-01	Providing and fixing Central Hole Basin Mixer with regular spout without Popup Waste system with 450mm long braided houses Jaquar Model FLR-5167NB or similar.	Each	3936.88	10.0	39368.8
2	NS-02	Providing and fixing Bib Cock (Straight line Model) with wall flange Jaquar Model FLR-5047N or similar.	Each	1472.2	88.0	129553.6
3	NS-03	Providing and fixing Sink Mixer with regular swinging spout (wall mounted model) with connecting legs & wall flanges Jaquar Model FLR-5309N or similar.	Each	4139.03	5.0	20695.15
4	NS-04	Providing and fixing Overhead shower size 150mm dia. Jaquar Model OHS-CHR-1603 or similar.	Each	4187.84	82.0	343402.88
5	NS-05	Providing and fixing Shower Arm 20mm dia, 300mm long Jaquar Model SHA-479L300 or similar.	Each	1181.07	82.0	96847.74
6	NS-06	Providing and fixing Hand shower 24mm round shape single flow Jaquar Model HSH-5537N or similar.	Each	1181.07	45.0	53148.15
7	NS-07	Providing and fixing Flexible tube 12mm dia, 1.5m long with nuts Jaquar Model SHA-549D12 or similar.	Each	1574.75	60.0	94485.0
8	NS-08	Providing and fixing Premium wall bracket for hand shower, 35mm dia & 100mm long round shape Jaquar Model SHA-555 or similar.	Each	656.15	12.0	7873.8

9	NS-09	Providing and fixing Hand shower (Health faucet) with 8mm dia, 1m long flexible tube & wall hook Jaquar Model ALD-573 or similar.	Each	5339.99	6.0	32039.94
10	NS-10	Providing and fixing Towel rack 600mm long with lower hangers Jaquar Model AKP-35781P or similar.	Each	4060.34	88.0	357309.92
11	NS-11	Providing and fixing Soap Dish Holder Jaquar Model AKP-35731P or similar.	Each	662.35	28.0	18545.8
12	NS-12	Providing and fixing Table top Wash Basin size 165 x 580 x 450mm Jaquar Model FLS-WHT-0575 or similar.	Each	9172.94	12.0	110075.28
13	NS-13	Providing and fixing Corner Glass shelf with brakets at 6 Jaquor modle no.ACN-1173 or similar.	Each	1271.12	90.0	114400.8
		Sub- total amount Rs.				1417746.86
		% Escalation	0.00%			0.00
		Net total Amount Rs.(Sch.A-3)				**1417746.86**

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Schedule: A-4 (Special type of doors, Glazed wall paneling etc.)						
Sl. No.	**NS item**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	NS-01	Supplying, fabricating & installation of 12m thick toughened glass wall (make SAINT-GOBAIN/MODI) (50% etched, if required) with door arrangement/partition wall wherever required as per drawing with necessary imported patch fittings for fixing toughened glass to masonry/concrete/glass at top, bottom & side with patch pivot, floors spring, imported handle of approved quality & silicon sealant, necessary fitting fixture & other hardware. The rate includes cost of all materials, labour, tools & plants and all lead & lift taxes etc. complete in all respects as per direction of the Engineer-in-Charge.	Sqm	4715.23	275.0	1296688.25
		Sub- total amount Rs.				1296688.25
		Escalation	0.00%			0.00
		Net total Amount Rs.(sch. A-4				**1296688.25**

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Schedule: A-5 (Running track.)						
Sl. No.	**NS item**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	NS-01	Providing and laying 15mm providing and fixing EDPM safety flooring puce on path way. (9 mm SBR Bottom layer & 6mm EDPM top layer) manufactured under quality management system of ISO 9001:2015, as per IAAF specification, having polymer content minimum 22%, High UV rating minimum 3 to 5 on greyscale, VOC less than 3.0 g/L, combustibility less than 40mm/min, elongation at break >500%, standard grain size 1.0-3.5mm and laying in three layers. REACH/SVHC & ROHS COMPLIANT, ANTIMICROBIAL & ANTIFUNGAL Tested. Material (a) 1st Layer of Polyurethane based primer coating. (b) IInd layer of 9mm Black Rubber base particle size mix with minimum 14% single component PU base binder. Styrene butadiene rubber/synthetic rubber. (c) IIIrd Layer of 6mm EDPM granules chemically bonded with MDI 18-20% single component of Diphenyimethane Discocyanateand paratfinic Oil etc. Design on base top layer by specialized team of installers, according to the specification of approved materials and shade as per the direction of engineer -in-charge(Guarantee Period Five year).	Sqm	2282.81	3465.0	7909936.65
		Sub- total amount Rs.				7909936.65
		Escalation	0.00%			0.00
		Net total Amount Rs.(sch. A-5				**7909936.65**

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Schedule B-1 (Earth work) USSOR- 2021						
Sl. No.	**USSOR -2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	011030	Earthwork in filling in embankment, guide bunds, around buried type abutments, bridge gaps, trolley refuges, platforms etc. with contractor's own earth conforming to Soil Quality Class SQ1/SQ2/SQ3, after preparation of foundations as applicable, benching in existing banks wherever required, spreading in layers with motor grader, bringing the moisture content to OMC, mechanical compaction to specified density and dressing of bank to final profile as per RDSO Specifications: RDSO/2020/GE: IRS-0004 with latest correction slips. Note:1) Foundation preparation, Benching including additional earthwork on account of this, wherever required, shall be paid extra under relevant schedule item for benching. 2) Payment for Earthwork under this item shall be made based on the cross section measurements calculated (i) with original ground profile of existing bank based on initial ground levels before doing benching and (ii) final profile of the bank worked out with final levels as per prevailing guidelines.				
1(a)	011031	Using Soil Class SQ1	**cum**	**298.55**	72186.0	21551130.3
		Sub- total (Sch. B-1).				21551130.3
		Escalation	-6.18%			-1331859.85
		Net total (Sch. B-1)Amount Rs.				**20219270.45**

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Schedule D-1, (CARRIAGE OF MATERIAL)						
Sl. No.	**DSR- - 2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	1.1.18	Disposal of moorum/building rubbish/ malba/ similar unserviceable, dismantled or waste material by mechanical transport including loading, transporting, unloading to approved municipal dumping ground for lead upto 10 km for all lifts, complete as per directions of Engineer-in-charge.	cum	411.30	900.0	370170.0
		Sub- total (Sch. D-1).				**370170.0**
		Escalation	-26%			**-96244.2**
		Net total (Sch. D-1) Amount Rs.				**273925.8**

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Schedule D-2 (Earth work)						
Sl. No.	**DSR- - 2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quanti ty**	**Amount (Rs.)**
1	2.6	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge.				
	2.6.1	All kinds of soil	cum	205.45	4187.0	860219.15
2	2.13	Excavating trenches of required width for pipes, cables, etc, including excavation for sockets, depth upto 1.5 m, including getting out the excavated materials, returning the soil as required in layers not exceeding 20 cm in depth, including consolidating each deposited layers by ramming, watering etc., stacking serviceable material for measurements and disposal of unserviceable material as directed, within a lead of 50 m :				
	2.13.1.3	Pipes, cables exceeding 300 mm dia but not exceeding 600 mm dia	M	1074	400.0	429600
3	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				
	2.25A	Excavating, supplying and filling of local earth (including royalty) by mechanical transport upto a lead of 5km also including	cum	368.65	2938.0	1083093.7

		ramming and watering of the earth in layers not exceeding 20 cm in trenches, plinth, sides of foundation etc. complete.				
4	2.27	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete	cum	2161.20	1977.0	4272692.4
5	2.31	Clearing jungle including uprooting of rank vegetation, grass, brush wood,trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 moutside the periphery of the area cleared.	Sqm	14.5	2822.0	40919.00
6	2.28	Surface dressing of the ground including removing vegetation and inequalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m.				
	2.28.1	All kinds of soil	Sqm	28.15	654.0	18410.1
7	2.35.3.1	Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300mm apart including drilling 12mm diameter holes and plugging with cement mortar 1:2 (1 cement: 2 Coarse sand) to match the existing floor:				
		With Chlorpyriphos E.C. 20% with 1% concentration	Sqm	256.15	2735	700570.25
		Sub- total (Sch. D-02).				**7405504.6**
		Escalation	-26%			**-1925431.2**
		Net total (Sch. D-2) Amount Rs.				**5480073.4**

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Schedule D-3 (Masonary Work						
Sl. No.	**DSR-- 2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	6.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
1(a)	6.1.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in1:4 cement mortar	cum	6882.00	316.00	2174712.0
2	6.1.2	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in1:6 cement mortar	cum	6658.25	240.00	1597980.0
3	6.4	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in				
3(a)	6.4.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	8512.10	70.00	595847.00
4	6.4.2	Cement mortar 1:6 (1 cement : 4 coarse sand)	cum	8288.35	2314.00	19179241.9
5		Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.				
5(a)	6.13.1	Cement mortar 1:3 (1 cement :3 coarse sand)	Sqm	1043.10	105.00	109525.5
		Sub- total (Sch. D-3).				23657306.4
		Escalation	-26%			-6150899.66
		Net total (Sch. D-03)Amount Rs.				17506406.74

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Schedule D-4 (cement concrete, Reinforced cement concrete,Flooring, Roofing, Finishing, Dismantling & Demolishing.						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
1(a)	4.1.2	1:1½:3 (1 Cement: 1½ coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources	cum	7783.65	75.00	583773.75
2	4.1.3	1:2:4 (1 cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	cum	7365.15	604.00	4448550.6
3	4.3	Centering and shuttering including strutting, propping etc. and removal of form work for :				
3(a)	4.3.1	Foundations, footings, bases for columns	Sqm	307.95	5350.00	1647532.5
4	4.5	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including				

		hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required Centering complete.				
4(a)	4.5.1	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources: 3 graded stone aggregate 20mm nominal size derived from natural sources)	cum	9277.75	95.00	881386.25
5	4.6	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), including the cost of required centering, shuttering complete				
5(a)	4.6.1	1:1.5:3 (1 Cement: 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources).	cum	8130.65	255.00	2073315.75
6	5.1	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :				
6(a)	5.1.2	1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) derived from natural sources: 3 graded stone aggregate 20 mm nominal size derived from	cum	8364.20	405.00	3387501.0
7		Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets,				

		columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement :				
7(a)	5.2.2	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	cum	10185.05	949.0	9665612.45
8	5.3	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15 degree landings, balconies,shelves,chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources).	cum	10719.30	115.0	1232719.5
	5.33	Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of				

		concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge; for the following grades of concrete. Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 1.10 times of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement.				
9	5.33.1	All works up to plinth level				
9(a)	5.33.1.1	Concrete of M25 grade with minimum cement content of 330 kg /cum	cum	8683.8	1002.00	8701167.6
9(b)	5.33.1.2	Concrete of M30 grade with minimum cement content of 350 kg /cum	cum	8825.35	50.0	441267.5
10	5.33.2	All works above plinth level up to floor V level..				
10(a)	5.33.2.1	Concrete of M25 grade with minimum cement content of 330 kg /cum	cum	10306.20	3625.0	37359975.0
10(b)	5.33.2.2	Concrete of M30 grade with minimum cement content of 350 kg /cum	cum	10477.75	39.0	408632.25
11	5.9.5	Lintels, beams, plinth beams, girders, bressumers and cantilevers	Sqm	608.35	12723.00	7740037.05
12	5.9.6	Columns, Pillars, Piers, Abutments, Posts and Struts	Sqm	804.25	17076.00	13733373.00
13		Extra for additional height in centering, shuttering where				

		ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured).				
13(a)	5.11.1	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	Sqm	319.25	5262.00	1679893.5
14	5.12	Providing, hoisting and fixing above plinth level up to floor five level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like, including the cost of required centering, shuttering but , excluding cost of reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources).	cum	9673.50	10.00	96735.0
15	11.2	Dry brick on edge flooring in required pattern with bricks of class designation 7.5 on a bed of 12 mm mud mortar, including filling joints with local sand, with common burnt clay non modular bricks.	Sqm	733.30	3665.0	2687544.5
16	11.7	Cement concrete pavement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete.	cum	7958.65	225.0	1790696.25
17	11.20,	Chequerred precast cement concrete tiles				

		22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).				
17(a)	11.20.1	Light shade pigment using white cement	Sqm	1233.05	350.0	431567.5
18	11.26	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :				
18(a)	11.26.1	25 mm thick	Sqm	1706.6	360.0	614376.0
19	11.41A	Providing and laying Vitrified tiles in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including				
19(a)	11.41A.2.1	Size of Tile 600 x 600 mm	Sqm	1359.2	150.0	203880.0
19(b)	11.41A.2.3	Size of Tile 800 x 800 mm	Sqm	1544.2	150.0	231630.0
19©	11.41A.2.5	Size of Tile 1200 x 1200 mm	Sqm	2298.45	8650.0	19881592.5
20	11.41A.3	Glazed Vitrified tiles Matt/Antiskid finish of size				
20(a)	11.41A.3.1	Size of Tile 600 x 600 mm	Sqm	1311.05	160.0	209768.0

20(b)	11.41A.3.3	Size of Tile 800 x 800 mm	Sqm	1544.2	70.0	108094.0
20©	11.41A.3.5	Size of Tile 1200 x 1200 mm	Sqm	2572.75	125.0	321593.75
21	11.56	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.				
21(a)	11.56.1	Polished Granite stone slab colour of Black, Cherry/Ruby Red or equivalent	Sqm	3908.80	50.0	195440.0
21(b)	11.56.2	Polished Granite stone slab of all colour and texture except Black, Cherry/Ruby Red	Sqm	2677.90	10.0	26779.0
22	12.31	Providing 10 mm thick plaster of Paris (gypsum anhydrous) ceiling up to a height of 5 m above floor level, over first class kail wood strips 25x6 mm with 10 mm gap in between and reinforced with rabbit wire mesh fixed to wooden frame (frame work to be paid separately):				
22(a)	12.31.1	Flat surfaces	Sqm	1421.25	750.0	1065937.5
22(b)	12.31.2	Curved surfaces	Sqm	1708.05	20.0	34161.0
22©	12.32	Extra for sunk or raised mouldings in the plaster of Paris	Sqm	485.75	10.0	4857.5

		(Gypsum anhydrous) ceiling				
23	12.41	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes				
23(a)	12.41.1	75 mm diameter	Mtr	213.00	60.0	12780.0
23(b)	12.41.2	110 mm diameter	Mtr	319.75	200.0	63950.0
24	12.42.5	Bend 87.5 degrees				
24(a)	12.42.5.2	110 mm bend	each	132.00	79.0	10428.0
25	12.47	Providing & fixing UV stabilised fiberglass reinforced plastic sheet roofing up to any pitch, including fixing with polymer coated 'J' or 'L' hooks, bolts & nuts 8mm dia. G.I plain/bitumen washers complete but excluding the cost of purlins, rafters, trusses etc. The sheets shall be manufactured out of 2400 TEX panel rovigs incorporating minimum 0.3% ultra-violet stabiliser in resin system under approximately 2400 psi and hot cured. They shall be of uniform pigmentation and thickness without air pockets and shall conform to IS 10192 and IS 12866.The sheets shall be opaque or translucent, clear or pigmented, textured or smooth as specified.				
25(a)	12.47.2	2 mm thick flat	Sqm	1048.50	350.0	366975.0
26	12.5	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of	Sqm	671.55	130.0	87301.5

		corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.				
27	12.58.1	8 mm thick fully perforated calcium silicate board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process to give stable crystalline structure with minimum compressive strength 225 kg/ sq. cm, bending strength 100 kg/sq. cm , of size 595x595 mm, having perforation of dia. 10 mm with minimum perforated area 18 % with non	Sqm	1851.50	350.0	648025.0

		woven tissue on the back side, having an NRC (Noise Reduction Coefficient) of 0.85, with 50 mm thick rockwool of 48 kg /cum backing.				
28	12.51	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete :				
28(a)	12.51.1	Ridges plain (500 - 600mm)	Metre	450.6	100.0	45060.0
28(b)	12.51.6	Gutter (600 mm over all girth)	Metre	1110.6	60.0	66636.0
29	13.4,	12 mm cement plaster of mix :				
29(a)	13.4.1	1:4 (1 cement: 4 coarse sand)	Sqm	307.25	220.0	67595.0
29(b)	13.4.2	1:6 (1 cement: 6 coarse sand)	Sqm	294.35	29172.0	8586778.20
30	13.16	6 mm cement plaster of mix :				
30(a)	13.16.1	1:3 (1 cement : 3 fine sand)	Sqm	253.05	9120.0	2307816.0
31	13.18	Neat cement punning.	Sqm	67.80	4569.0	309778.20
32	13.2	Pebble dash plaster upto 10 m height above ground level with a mixture of washed pebble or crushed stone 6 mm to 12.5 mm nominal size, dashed over and including fresh plaster in two layers under layer 12 mm cement plaster 1:4 (1 cement : 4 coarse sand) and top layer 10 mm cement plaster with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 10% finely grounded hydrated	Sqm	705.90	150.0	105885.0

		lime by volume of cement.				
33	13.22	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	Sqm	72.80	1000.0	72800.0
34	13.26	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.	Sqm	214.30	32342.0	6930890.6
35	13.45	Finishing walls with textured exterior paint of required shade :				
35(a)	13.45.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	Sqm	245.00	3000.0	735000.0
36	13.48	Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers specifications :				
36(a)	13.48.1	Two or more coats applied on walls @ 1.25 ltr/10 sqm over and including one coat of Special primer applied @ 0.75 ltr /10 sqm	Sqm	158.95	30620.0	4867049.0
36(b)	13.48.2	Painting wood work with Deluxe Multi Surface Paint of required shade.	Sqm	144.90	40.0	5796.0
36©	13.48.3	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @ 0.80 ltr/10 sqm of approved brand and manufacture	Sqm	140.05	1460.0	204473.0
37	13.60	Wall painting with acrylic emulsion paint of approved brand				

		and manufacture to give an even shade :				
37(a)	13.60.1	Two or more coats on new work	Sqm	137.85	450.0	62032.5
38	13.61	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
38(a)	13.61.1	Two or more coats on new work	Sqm	131.45	125.0	16431.25
39	13.85	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content.				
39(a)	13.85.1	With ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/ litre	Sqm	61.45	125.0	7681.25
40	13.91	Removing dry or oil bound distemper, water proofing cement paint and the like by scrapping, sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete.	Sqm	20.85	100.0	2085.0
41	13.90,	Distempering with 1st quality acrylic distember (Ready mix) having VOC content less than 50 grams/ litre of approved brand and manufacture to give an even shade :				
41(a)	13.90.1	Old work (one or more coats)	Sqm	56.80	1300.0	73840.0
42	13.98	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:				
42(a)	13.98.1	One or more coats on old work	Sqm	90.85	5300.0	481505.0
43	15.2	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of				

		Engineer - in - charge.				
43(a)	15.2.1	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	cum	2007.10	60.0	120426.0
44	15.3,	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	Cum	2928.10	105.0	307450.5
45	15.7	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
45(a)	15.7.4	In cement mortar	cum	1698.45	600.0	1019070.0
46	15.13	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking within 50 metres lead :				
46(a)	15.13.1	Of area 3 sq. metres and below	Each	118.30	205.0	24251.5
		Sub- total (Sch. D-04).				149499179.7
		Escalation	-26%			-38869786.72
		Net total (Sch.D-4)Amount Rs.				**110629392.98**

पूर्व मध्य रेल
'निर्माण संगठन
मुख्य प्रशासनिक अधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule D-4(a) Steel Reinforcement						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
1(a)	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more	Kg	89.65	203600.000	18252740.0
2	5.22A	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
2(a)	5.22A.6	Thermo-Mechanically Treated bars of grade Fe-500D or more.	Kg	89.65	507500.0	45497375.0
		Sub- total (Sch. D-04)(a)				63750115.0
		Escalation	-26%			-16575029.90
		Net total (Sch. D-4(a) Amount Rs.				**47175085.10**

Note:-

1. Material as per requirement shall be brought to site and kept under contract's custody at his own cost and risk without any damage like rusting of steel etc.
2. Payment for the materials will be made through running and final bills as per actual consumption in the work and whatever the wastage that takes place i.e. cut piece etc. will be the contractors property and the same shall be removed from the site at his own cost.
3. All Reinforcement Steel [TMT Bars] and Structural Steel shall be procured As per Specifications mentioned in BISs documents - IS:1786 and IS:2062 respectively. Independent tests shall be conducted at National Testing Laboratory Kolkata or any Govt. approved laboratory as per direction of Engineer-in-charge, wherever required, to ensure that the materials procured conform to the Specifications.
   These 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, followed by production of liquid steel and crude steel, as per Ministry Of Steel's guidelines.
   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. Traceability shall be ensured by an officer

specially authorized by the concerned SAG officer of the Zonal Railway on case to case basis for this purpose".

4. Contractor should produce original voucher of purchase from authorized agencies of the manufacturer in the name of the contractor and original test certificates of the manufacture.

5. The Railway reserves the right to take samples of materials supplied by the contractor and to get the same tested in reputed laboratories and the results thereof shall be binding on the contractors

'निर्माण संगठन
मुख्य प्रशासनिक अधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule D-5 (Cladding Work, Wood and PVC work, Repair to Building)						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1		Granite stone slab of colour black, Cherry/Ruby red				
1(a)	8.2.2.1	Area of slab upto 0.50 sqm	Sqm	4679.35	4.0	18717.4
1(b)	8.2.2.2	Area of slab over 0.50 sqm	Sqm	4425.35	7.0	30977.45
2		Providing edge moulding to 18 mm thick marble stone counters, Vanities etc., including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.				
2(a)	8.3.2	Granite work	Mtr	418.85	12.0	5026.2
3		Providing and fixing 75mm high, 50mm deep and 18mm thick stone slab table rubbed, edges rounded and polished, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth.				
3(a)	8.10.2	Granite Stone of approved shade	Sqm	3542.85	30.0	106285.5
4	8.31	Providing and fixing Ist quality ceramic glazed wall tiles conforming to	Sqm	1063.45	80.0	85076.0

		IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.				
5	8.32	Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building , for all heights and all levels etc. including: (a) Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design. (b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metalic colour of approved shades made out of 4mm thick aluminium composite panel material	Sqm	4474.20	10.0	44742.0

		consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. (c) The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium				

		composite panel cladding till the handing over of the building for occupation. Base frame work for ACP cladding is payable under the relevant aluminium item.s The Contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete , as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge. However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm. up to two decimal places.				
6	9.1	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).				
6(a)	9.1.3	Kiln seasoned and chemically treated hollock wood	Cum	74199.70	11.5	853296.55
7	9.7.7	Float glass panes				
7(a)	9.7.7.2	5.0 mm thick glass panes (weight not less than 12.50 kg/sqm).	Sqm	2231.20	60.0	133872.0
8	9.7.8	Fly proof stainless steel grade 304 wire	Sqm	1521.60	1000.0	1521600.0

		gauge with 0.5 mm dia. wire and				
9	9.2	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.				
9(a)	9.20.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	Sqm	3086.10	455.0	1404175.5
10	9.40.	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete :				
10(a)	9.40.1.1	50x12 mm teak wood	mtr	191.55	1100.0	210705.0
11	9.46	Providing and fixing chromium plated brass curtain rod having wall thickness of 1.25mm with two chromium plated brass brackets fixed with C.P. brass screws and PVC sleeves etc., wherever necessary complete :				
11(a)	9.46.2	20 mm dia	Mtr	375.25	540.0	202635.0
12	9.48	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.				
12(a)	9.48.1	Fixed to steel windows by welding	Kg	181.00	20060.0	3630860.0
13	9.7	Providing and fixing IS : 12817 marked stainless steel butt hinges with stainless steel screws etc. complete :				
13(a)	9.70.1	125x64x1.90 mm	Each	95.50	1281.0	122335.5

14	9.74	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete :				
14(a)	9.74.2	200x10 mm	Each	300.55	212.0	63716.6
15	9.82	Providing and fixing bright finished brass hanging type floor door stopper with necessary screws, etc. complete.	Each	109.60	212.0	23235.2
15(a)	9.84	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	Each	856.30	212.0	181535.6
16	9.88	Providing and fixing chromium plated brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.	Each	817.50	212.0	173310.0
17	9.90,	Providing and fixing special quality chromium plated brass cupboard locks with six levers of approved quality including necessary screws etc. complete.				
17(a)	9.90.2	Size 50 mm	Each	286.30	185.0	52965.5
18	9.120	Providing and fixing factory made panel PVC door shutter consisting of frame made out of M.S. tubes of 19 gauge thickness and size of 19 mm x 19 mm for styles and 15x15 mm for top & bottom rails. M.S.				

		frame shall have a coat of steel primers of approved make and manufacture. M.S. frame covered with 5 mm thick heat moulded PVC 'C' channel of size 30 mm thickness, 70 mm width out of which 50 mm shall be flat and 20 mm shall be tapered in 45 degree angle on both side forming styles and 5 mm thick, 95 mm wide PVC sheet out of which 75mm shall be flat and 20 mm shall be tapered in 45 degree on the inner side to form top and bottom rail and 115 mm wide PVC sheet out of which 75 mm shall be flat and 20 mm shall be tapered on both sides to form lock rail. Top, bottom and lock rails shall be provided both side of the panel. 10 mm (5 mm x 2) thick, 20 mm wide cross PVC sheet be provided as gap insert for top rail & bottom rail, paneling of 5 mm thick both side PVC sheet to be fitted in the M.S. frame welded/ sealed to the styles & rails with 7 mm (5 mm+2 mm) thick x 15 mm wide PVC sheet beading on inner side, and joined together with solvent cement adhesive. An additional 5 mm thick PVC strip of 20 mm width is to be stuck on the interior side of the 'C' Channel using PVC solvent adhesive etc. complete				

		as per direction of Engineer-in-charge, manufacturer's specification & drawing.				
18(a)	9.120.1	30 mm thick plain PVC door shutters	Sqm	2455.10	176.0	432097.6
19	9.141	Providing and fixing PVC Door Frame of size 50x47 mm with a wall thickness of 5 mm (+/- 0.2 mm), made out of single piece extruded PVC profile, with mitred cut joints and joint with 2 nos of PVC bracket of size 190 mm x 100 mm long arms of cross section size 35 x 15 mm & self driven self taping screws, the vertical door profiles to be reinforced with 40x20 mm M.S. rectangular tube of 0.8 mm , including providing EPDM rubber gasket weather seal throughout the frame, including jointing 5 mm PVC frame strip with PVC solvent cement on the back of the profile. The door frame to be fixed to the wall using 8 x100 mm long anchorfasteners complete, all as per manufacturer's specification and direction of Engineer -in-charge.	mtr	462.25	440.0	203390.0
20	9.147	Providing and fixing factory made uPVC white colour sliding glazed window upto 1.50 m in height dimension comprising of uPVC multichambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 +/- 0.2 mm thick galvanized mild steel section made from roll forming process of				

		required length (shape & size Page 15 of 19				
20(a)	9.147D.2	Three track three panels sliding window with fly proof SS wire mesh (Two nos. glazed & one no. wire mesh panels) made of (small series) frame 92 x 44 mm & sash 32 x 60 mm both having wall thickness of 1.9 +/- 0.2 mm and single glazing bead of appropriate dimension (Area of window upto 1.75 sqm).	Sqm	10030.30	380.0	3811514.0
21	14.1	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq.meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.				
21(a)	14.1.2	With cement mortar 1:4 (1cement: 4 coarse sand)	Sqm	478.00	200.0	95600.0
22	14.2	Fixing chowkhats in existing opening including embedding chowkhats in floors or walls cutting masonry for holdfasts, embedding hold fasts in cement concrete blocks of size 15 x 10 x 10 cm with cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size), painting two coats of approved wood preservative to sides of chowkhats and making good the				

		damages to walls and floors as required complete, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.				
22(a)	14.2.1	Door chowkhats	Each	1505.30	220.0	331166.0
22(b)	14.2.2	Window chowkhats	Each	948.05	5.0	4740.25
		Sub- total (Sch. D-5).				13743574.85
		Escalation	-26%			-3573329.46
		Net total (Sch. D-5) Amount Rs.				**10170245.39**

'निर्माण संगठन
मुख्य प्रशासनिक अधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule D-6 (Steel work,Aluminium work, Structural glazing Aluminium composite panel)						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg	111.95	26500.0	2966675.0
2	10.3	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer.	Sqm	9397.35	14.0	131562.9
3	10.26	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.				
3(a)	10.26.1	M.S. tube	Kg	157.15	150.0	23572.5
4	10.28	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making	Kg	612.25	2800.0	1714300.0

		curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).				
5	10.31	Providing and fixing angle iron frames for doors, windows and ventilators of mild steel angle sections of size 35x35x5 mm, joints mitred and welded by angle iron 35x35x5 mm or 35x 5 mm flat pieces to the existing T-iron frame or to the wall with dash fastener, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer, all complete as per the direction of Engineer-Incharge.	Kg	103.70	1200.00	124440.0
6	21.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM				

		rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately)				
6(a)	21.1.1.3	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)	Kg	474.70	150.0	71205.0
7	21.1.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
7(a)	21.1.2.3	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)	Kg	573.40	150.0	86010.0
8	21.3	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):				
8(a)	21.3.1	With float glass panes of 4.0 mm thickness (weight not less than 10kg/sqm)	Sqm	1019.80	150.0	152970.0
9	21.4.	Providing and fixing double action hydraulic floor spring of approved				

		brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.				
9(a)	21.4.1	With stainless steel cover plate minimum 1.25 mm thickness	Each	2448.85	25.0	61221.25
10	21.18	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & double acting hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately)	Sqm	4540.70	150.0	681105.0
11	25.2	Designing, fabricating, testing, protection, installing and fixing in position semi (grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels, including: (a) Structural analysis & design and preparation of shop drawings for the specified design loads conforming to IS 875	Sqm	3111.35	250.0	777837.5

		part III (the system must passed the proof test at 1.5 times design wind pressure without any failure), including functional design of the aluminium sections for fixing glazing panels of various thicknesses, aluminium cleats, sleeves and splice plates etc. gaskets, screws, toggles, nuts, bolts, clamps etc., structural and weather silicone sealants, flashings, fire stop (barrier)-cum-smoke seals, microwave cured EPDM gaskets for water tightness, pressure equalisation & drainage and protection against fire hazard including: (b) Fabricating and supplying serrated M.S. hot dip galvanised/Aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimensional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC/masonry/structural steel framework of building structure using stainless steel anchor fasteners/ bolts, nylon separator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers. (c) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work				

		shop environment, including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture, as per the approved sealant design, within and all around the perimeter for holding glass. (d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight. (e) Making provision for drainage of moisture/water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastage etc, enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, duly approved by				

		Engineer-in-charge. The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working structural glazing as specified, cleaning and protection till the handing over of the building for occupation. In the end, the Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge.				
12	25.3	Providing, assembling and supplying vision glass panels (IGUs) comprising of hermetically-sealed 6-12- 6 mm insulated glass (double glazed) vision panel units of size and shape as required and specified, comprising of an outer heat strengthened float glass 6mm thick, of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade, an inner Heat strengthned clear float glass 6mm thick, spacer tube 12mm wide, dessicants, including primary seal and secondary seal (structural silicone sealant) etc. all complete for the required performances, as per the Architectural drawings, as per the approved shop	Sqm	3377.50	275.0	928812.5

		drawings, as specified and as directed by the Engineerin- Charge. The IGUs shall be assembled in the factory/ workshop of the glass processor. (Payment for fixing of IGU Panels in the curtain glazing is included in cost of item No.25.2) For payment, only the actual area of glass on face # 1 of the glass panels (excluding the areas of the grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm. (i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, + 12mm Airgap + 6mm Heat Strengthened clear Glass of approved make having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 degree K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement.				
13	25.4	Extra for openable side / top hung vision glass panels (IGUs) including providing and supplying at site all accessories and hardwares for the openable panels as specified and of the approved make such as heavy duty stainless steel friction hinges, min 4 - point cremone locking sets with stainless steel plates, handles, buffers etc. including necessary stainless steel screws/	Sqm	3309.05	10.0	33090.5

		fasteners, nuts, bolts, washers etc. all complete as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer- in-Charge.				
14	25.5	Providing, fabricating and supplying shadow box of required size and shape, for fixing in the spandrel portion of the structural glazing, in linear as well as curvilinear portions of the building by providing semi -rigid, inorganic, non-combustible fibre glass wool insulation 50 mm thick, conforming to IS: 8183 and BS: 3958 Part 5. The insulation layer shall have facing (factory bonded on surface # 1 of the fibre glass insulation layer), of black non-woven fibre glass tissue of nominal thickness 0.5 mm and nominal mass not less than 60 gm /sqm, made of randomly oriented glass fibres distributed in a binder by a wet-lay process including fixing 1.5 mm thick solid aluminum sheet backing using, 6 mm thick cement board including SS rivets, nuts, bolts, washers etc complete.	Sqm	1954.30	20.0	39086.0
		Sub- total (Sch. D-6).				7791888.15
		Escalation	-26%			-2025890.92
		Net total (Sch. D-6) Amount Rs.				**5765997.23**

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule D-7 (Road Work)						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	16.1	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earthwith lead upto 50 metres.	Sqm	180.50	10000.0	1805000.0
2	16.2	Extra for compaction of earth work in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (proctor density).	cum	20.55	10000.0	205500.0
3	16.3,	Supplying and stacking at site.				
3(a)	16.3.2	63 mm to 45 mm size stone aggregate	cum	1624.50	1332.0	2163834.0
3(b)	16.3.3	53 mm to 22.4 mm size stone aggregate	cum	1837.25	1332.0	2447217.0
4	16.4,	Laying, spreading and compacting stone aggregate of specified sizes to WBM specifications in uniform thickness, hand picking, rolling with 3 wheeled road/vibratory roller 8-10 tonne capacity in stages to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering	Cum	865.80	2664.0	2306491.2

		and compacting to the required density .				
5	16.6,	Supplying, stacking and Spreading 6 mm thick red bajri, watering and rolling complete including preparation of the surface and rolling.				
5(a)	16.6.1	With road roller/ hand roller	Sqm	21.80	4464.0	97315.2
6	16.7.	Brick edging in full brick width and half brick depth including excavation, refilling and disposal of surplus earth lead upto 50 metres.				
6(a)	16.7.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Mtr	179.50	2000.0	359000.0
7	16.3	Providing and applying tack coat using hot straight run bitumen of grade VG - 10, including heating the bitumen, spraying the bitumen with mechanically operated spray unit fitted on bitumen boiler, cleaning and preparing the existing road surface as per specifications :				
7(a)	16.30.1	On W.B.M. @ 0.75 Kg / sqm	Sqm	45.20	6000.0	271200.0
8	16.33	2.5 cm premix carpet surfacing with 2.25 cum and 1.12 cum of stone chippings of 13.2 mm and 11.2 mm size respectively per 100 sqm and 52 kg and 56 kg of hot bitumen per cum of stone chippings of 13.2 mm and 11.2 mm size respectively, including a tack coat with hot straight run bitumen, including consolidation with road roller of 6 to 9 tonne capacity etc. complete (tack coat to be paid for separately).				

8(a)	16.33.2	With paving Asphalt grade VG - 30 with no solvent	Sqm	254.80	6000.0	1528800.0
9	16.41	Providing and laying seal coat over prepared surface of road with bitumen heated in bitumen boiler fitted with the spray set spraying using 98 kg of bitumen of grade VG - 10 and blinding surface with 0.90 cum of stone aggregate of 6.7 mm size (Passing 11.2 mm sieve and retained on 2.36 mm sieve) per 100 sqm of road surface, including rolling and finishing with power road roller all complete.	Sqm	106.10	6000.0	636600.0
10	16.43	Providing and laying design mix cement concrete of M-30 grade, in roads/ taxi tracks/ runways, using cement content as per design mix, using coarse sand and graded stone aggregate of 40 mm nominal size in appropriate proportions as per approved & specified design criteria, providing dowel bars with sleeve/ tie bars wherever required, laying at site, spreading and compacting mechanically by using needle and surface vibrators, levelling to required slope/ camber, finishing with required texture, including steel form work with sturdy M.S. channel sections, curing, making provision for contraction/ expansion, construction & longitudinal joints (10 mm wide x 50 mm				

		deep) by groove cutting machine, providing and filling joints with approved joint filler and sealants, complete all as per direction of Engineer-in-charge (Item of joint fillers, sealants, dowel bars with sleeve/ tie bars to be paid separately)				
10(a)	16.43.1	Cement concrete prepared with batch mixing machine	cum	9492.90	1185.0	11249086.5
11	16.47	Painting runway/taxi track/apron marking with adequate nos of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge, i/c cleaning the surface of all dirt, scales, oil, grease and other foreign material etc. and lining out complete				
11(a)	16.47.1	New work (Two or more coats)	Sqm	158.50	200.0	31700.0
12	16.53	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5mm thick)	Mtr	303.65	250.0	75912.5

		wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)				
13	16.61	Providing Retro-reflective regulatory sign board of size 900 mm dia meter made out of 2 mm thick aluminium sheet, face to be fully covered with high intensity encapsulated lens type retro -reflective sheeting as approved by Engineer-in-charge . Letter, symbols, borders etc. will be as per IRC - 67 with required colour scheme on the boards and with the high intensity grade A. The aluminium sheet to be riveted to M.S. frame of angle iron of size 40x40x4 mm. The boards will be fixed to 1 No. 50x50 mm square post made of M.S. angle 50x50x4 mm, 4 m long welded to the frame with adequate anti-theft arrangement .Sheet work to be painted with two or more coats of synthetic enamel paint over an under coat (primer) and back side of aluminium sheet to be painted with two or more coats of epoxy paint including appropriate priming coat complete in all respects as per direction of Engineer-in-charge.	Each	6281.60	13.0	81660.8
14	16.65	Providing and fixing post delineators made of ABS round body fitted with 2 nos 100 mm dia high reflective reflectors and mounted on MS pipe of 65 mm dia duly powder coated anti-rust and anti theft steel to be	Each	781.40	10.0	7814.0

		installed as per direction of Engineer-in-charge				
15	16.69	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer	cum	8613.55	2.0	17227.1
16	16.71	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 25x25 mm made of G.I. wire of dia 3 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge.	Sqm	971.9	20.0	19438.0
17	16.91	M-25 grade cement concrete in position to the required line, level and				
17(a)	16.91.2	80 mm thick C.C. paver block of M-30 grade with approved color design and pattern.	Sqm	1011.20	900.0	910080.0
		Sub- total (Sch. D-7).				24213876.3
		Escalation	-26%			-6295607.84
		Net total (Sch. D-7) Amount Rs.				**17918268.46**

'निर्माण संगठन
मुख्य प्रशासनिक अधिकारी निर्माण कार्यालय
महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule D-8 (Sanitary installations, Water supply , Drainage)						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	17.1.	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required:				
1(a)	17.1.1	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests	Each	5781.35	61.0	352662.35
2	17.2	Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required :				

2(a)	17.2.1	W.C. pan with ISI marked white solid plastic seat and lid	Each	5540.55	47.0	260405.85
3	17.5.	Providing and fixing white vitreous china flat back half stall urinal of size 580x380x350 mm with white PVC automatic flushing cistern, with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass, including painting of fittings and cutting and making good the walls and floors wherever required :				
3(a)	17.5.1	Single half stall urinal with 5 litre P.V.C. automatic flushing cistern	Each	10128.30	16.0	162052.8
4	17.7	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:				
4(a)	17.7.1	White Vitreous China Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps	Each	2275.00	13.0	29575.0
4(b)	17.7.4	White Vitreous China Flat back wash basin size 550x 400 mm with single 15 mm C.P. brass pillar tap	Each	1679.60	11.0	18475.6
4©	17.7.9	White Vitreous China Surgeon type wash basin of size 660x460 mm with single 15 mm C.P. brass pillar taps with elbow operated	Each	2629.55	5.0	13147.75

		levers ISI Marked				
5	17.8.	Providing and fixing white vitreous china pedestal for wash basin completely recessed at the back for the reception of pipes and fittings.	Each	1500.05	11.0	16500.55
6	17.10.	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS:13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required :				
6(a)	17.10.1.2	510x1040 mm bowl depth 225 mm	Each	6677.40	3.0	20032.2
7	17.16A	Providing and fixing 8 mm dia C.P. / S.S. Jet with flexible tube upto 1 metre long with S.S. triangular plate to Eureopean type W.C. of quality and make as approved by Engineer - in - charge.	Each	299.35	14.0	4190.90
8	17.20	Providing and fixing solid plastic seat with lid for pedestal type W.C. pan complete :				
8(a)	17.20.1	White solid plastic seat with lid	each	586.55	14.0	8211.7
9	17.22A	Providing and fixing CP Brass 32mm size Bottle Trap of approved quality & make and as per the direction of Engineer-in-charge.	Each	886.25	110.0	97487.5
10	17.22B	Providing and fixing CP Brass Single lever telephonic wall mixer of quality & make as approved by Engineer in charge. (a) 15 mm nominal dia	Each	6119.15	72.0	440578.8
11	17.28	Providing and fixing P.V.C. waste pipe for sink or wash				

		basin including P.V.C. waste fittings complete.				
	17.28.2	Flexible pipe				
11(a)	17.28.2.1	32 mm dia	Each	104.35	4.0	417.4
11(b)	17.28.2.2	40 mm dia	Each	104.35	13.0	1356.55
12	17.31	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	Each	1411.15	57.0	80435.55
13	17.33	Providing and fixing 600x120x5 mm glass shelf with edges round off, supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete	Each	942.15	57.0	53702.55
14	17.34	Providing and fixing toilet paper holder :				
14(a)	17.34.1	C.P. brass	Each	680.80	86.0	58548.8
15	17.69	Providing and fixing PTMT Waste Coupling for wash basin and sink, of approved quality and colour.				
15(a)	17.69.2	Waste coupling 38 mm dia of 83 mm length and 77mm breadth, weighing not less than 60 gms	Each	109.70	75.0	8227.5
16	17.71	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour, weighing not less than 105 gms.	Each	146.30	82.0	11996.6
17	17.72	Providing and fixing PTMT towel ring trapezoidal shape 215 mm long,	each	204.70	98.0	20060.6

		200 mm wide with minimum distances of 37 mm from wall face with concealed fittings arrangement of approved quality and colour, weighing not less than 88 gms.				
18	17.73.2	600 mm long towel rail with total length of 645 mm, width 78 mm and effective height of 88 mm, weighing not less than 190 gms.	Each	600.35	47.0	28216.45
19	17.74	Providing and fixing PTMT shelf 440 mm long, 124 mm width and 36 mm height of approved quality and colour, weighing not less than 300 gms.	each	607.05	35.0	21246.75
20	17.75	Providing and fixing PTMT 15 mm Urinal spreader size 95x69x100 mm with 1/2" BSP thread and shapes, weighing not less than 60 gms.	Each	92.75	32.0	2968.0
21	17.76	Providing and fixing PTMT urinal cock of approved quality and colour.				
21(a)	17.76.1	15 mm nominal bore, 80 mm long, 42 mm high and 30mm wide with BSP female threads weighing not less than 48 gms	Each	149.95	24.0	3598.8
22	17.78	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern with dual flush fitting, of flushing capacity 3 litre/ 6 litre (adjustable to 4 litre/ 8 litres), including seat cover, and cistern fittings, nuts, bolts	Each	13036.55	8.0	104292.4

		and gasket etc complete				
23	17.80.	Providing and fixing white vitreous china battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge	Each	7004.45	19.0	133084.55
24	18.8	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge, Concealed work, including cutting chases and making good the wall etc.				
24(a)	18.8.1	15 mm nominal dia Pipes	Mtr	441.15	115.0	50732.25
24(b)	18.8.2	20 mm nominal dia Pipes	Mtr	513.75	150.0	77062.5
24©	18.8.3	25 mm nominal dia Pipes	Mtr	626.05	225.0	140861.25
24(d)	18.8.4	32 mm nominal dia Pipes	Mtr	712.75	60.0	42765.0
25	18.9.	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) 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 & testing of joints complete as per direction of Engineer in Charge.-External work				
25(a)	18.9.1	15 mm nominal dia Pipes	Mtr	221.35	35.0	7747.25
25(b)	18.9.2	20 mm nominal dia Pipes	Mtr	275.25	85.0	23396.25
25©	18.9.3	25 mm nominal dia Pipes	Mtr	370.65	520.0	192738.0
25(d)	18.9.5	40 mm nominal dia Pipes	Mtr	559.20	575.0	321540.0
25 €	18.9.6	50 mm nominal dia Pipes	Mtr	811.85	1100.0	893035.0
26	18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, IS : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	Ltr	9.70	29000.0	281300.0
27	18.49	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931 :				
27(a)	18.49.1	15 mm nominal bore	Each	434.20	155.0	67301.0
27	18.50.	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.				
28(a)	18.50..1	15 mm nominal bore	Each	715.05	120.0	85806.0
29	18.52.	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved				

		make conforming to IS:8931.				
29(a)	18.52.1	15 mm nominal bore	Each	594.75	270.0	160582.5
30	19.2	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design :				
30(a)	19.2.3	200 mm diameter S.W. pipe	Mtr	1276.70	225.0	287257.5
31	9.36	Providing and laying Non Pressure NP-4 class (Heavy duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete				
31(a)	19.36.3	900 mm dia RCC pipes.	Mtr	6594.40	66.0	435230.4
		Sub- total (Sch. D-8).				5018828.40
		Escalation	-26%			-1304895.38
	Net total (Sch. D-8) Amount Rs.					**3713933.02**

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महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule D-9 (Pile work)						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	20.3.	Boring with hydraulic piling rigs with power units, providing and installing cast in situ single under reamed piles of specified diameter and length below pile cap in M-25 cement concrete, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and the length of the pile to be embedded in pile cap etc. all complete. (Length of pile for payment shall be measured upto to the bottom of pile cap) :				
1(a)	20.3.1	300 mm dia piles	Mtr	2560.90	4226.0	10822363.4
1(b)	20.3.4	550 mm dia piles	Mtr	3956.75	8820.0	34898535.0
2	20.4	Extra over single under ream for providing additional bulbs in under reamed piles, under specified diameter(only the nos. of extra bulbs are to be paid)				
2(a)	20.4.1	300 mm dia piles	Each	2182.60	1413.0	3084013.8
2(b)	20.4.4	550 mm dia piles	Each	2800.80	892.0	2498313.6
		Sub- total (Sch. D-9).				51303225.80
		Escalation	-26%			-13338838.7
		Net total (Sch. D 9) Amount Rs.				**37964387.09**

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Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule D-10 (Water proofing, Rain water harvesting & tube wells, Conservation of heritage building, New Technologies and Materials						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	23.1	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level.				
	23.1.1	All types of soil				
1(a)	23.1.1.1	300 mm dia	metre	592.05	450.0	266422.5
2	23.3	Supplying, assembling, lowering and fixing in vertical position in borewell, unplasticized PVC medium well casing (CM) pipe of requireddia, conforming to IS: 12818, including required hire and labourcharges, fittings & accessories etc. all complete, for all depths, asper direction of Engineer -in-charge				
2(a)	23.3.3	200 mm nominal size dia	metre	951.95	450.0	428377.5
3	23.5	Supplying, filling, spreading & leveling stone boulders of size range5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	Cum	1302.30	15.0	19534.5

4	23.8	Gravel packing in tube well construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.	Cum	1479.25	9.0	13313.25
5	23.14	Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tube well as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.				
5(a)	23.14.3	200 mm clamp	each	1827.00	3.0	5481.0
6	26.93	Providing and fixing of facade at all heights with extruded hollow Clay / Terracotta ventilated rain screen tiles of height 259/ 309/ 409mm and length of 1190 mm of approved texture, design and pattern having Flexural Strength/ Modulus of Rupture of greater than or equal to 14 N/m2 and maximum water absorption of 10% tested as per ISO 10545-4:2004(E) and ISO 10545-3:1995 respectively in true level fixed to a supporting aluminium framework (Alloy 6063 T5/T6) consisting of vertical 'T' (for intermediates)/ 'L' (for ends/ termination)/ Tubular sections (at corners)of size 80x60x2mm/ 40x60x2mm/ 40x40x2mm respectively, spaced at maximum spacing of 1200mm c/c matching to the tile vertical grid, and horizontal				

		aluminium 'C'-clamps of size 56x34x2 mm thickness of length 150mm at junction of tiles and of length 75mm at wall ends/ corners fixed on top of the vertical sections at spacing of 250/ 300/ 400mm c/c matching to the tile horizontal grid with two numbers of self-drilling / self-tapping SS screws of size 5.5x25 mm with EPDM washers. The vertical 'T'/'L/ Tubular' sections shall be fixed to the wall using HDG (hot-dip-galvanized) steel L-brackets (galvanizing thickness of minimum 80 microns) of size 110x80x6 mm at intermediate vertical aluminium profiles and of size 220x110x12 mm at outer corners and stainless steel grade 304,M10 full threaded anchor fasteners with nylon sleeve 100mm long (for brick work) and M8 expansion anchor fasteners 75mm long for concrete surface, spacing of brackets to be based on a structural/ static calculation. The brackets shall be of length 175mm at junction of two vertical aluminium profiles and of length 100mm at intermediate points of vertical profiles and shall be fixed to the vertical aluminium T / L / Tubular profiles using two				

		numbers self-drilling/ self-tapping SS screws of size 5.5x25 mm with EPDM washers. EPDM gaskets to be fixed in between brackets and vertical profiles. The tiles shall be mounted on the 'C' clamps such that the tiles are supported at top and bottom at both ends. The tiles shall be mounted on the C-clamps with EPDM profiles in between such that the tiles are supported at top and bottom at both ends. The vertical joint open groove between two adjacent tiles shall be 10mm. The tiles and system shall be designed to resist wind load as per IS 875 (Part 3) according to different zones. The tiles shall be installed using the ventilated rain screen principle with provision for natural ventilation				
6(a)	26.93.2	With 24mm thickness (+/- 10%) terracotta tiles of other than grey colors	Sqm	5151.40	230.0	1184822.0
7	26.91	Providing and fixing factory made 18 mm thick single extruded WPC (Wood Polymer Composite) solid plain white colour board Jali, CNC (Computer numeric control) routed of approved design by Engineer-in -charge which are machine cut for duct/shaft covering, partitions and facades comprising of virgin polymer of K value 58-60 (Suspension	Sqm	3136.65	550.0	1725157.5

		Grade), calcium corbonate and natural fibers (wood powder/ rice husk/wheat husk) and non toxic additives(maximum toxicity index of 12 for 100 gms) having minimum density of 650 kg/cum and screw withdrawal strength of 1800 N (Face) minimum compressive strength 50 N/mm2, modulus of elasticity 850 N/mm2 and resistance to spread of flame of Class A category with properties of being termite/borer proof, water/moisture proof and fire retardant and fixing on M.S (mild steel) frame made of 25 x 25 x 1.5 mm square hollow box section including applying a priming coat of approved steel primer, placed at grid made at 1.0 x 1.0 m or as per requirement at site with necessary stainless steel fasteners and SS screws etc., all complete as per direction of Engineer-In- Charge. (Note: M.S (mild steel) framework with priming coat and necessary SS fasteners and SS screws shall be paid separately.				
		Sub- total (Sch. D-10).			`	3643108.25
		Escalation	-26%			-947208.15
		Net total (Sch. D-10)Amount Rs.				**2695900.11**

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Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

DSR 2020 (Horticulture & Landscaping)						
Sl. No.	**DSR-2020**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
1	2.2	Supplying and stacking of good earth at site including royalty and carriage upto 5 km lead complete (earth measured in stacks will be reduced by 20% for payment).	cum	515.60	100	51560
2	2.11	Renovating lawns including weeding, cheeling the grass, forking the ground, top dressing with sludge or manure, mixing the same with forked soil, watering and maintaining the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for mowing and disposal of rubbish as directed, including supplying good earth if needed (the cost of sludge, manure and the good earth shall be paid for separately).	Sqm	34.40	100	3440
3	2.16	Providing and fixing M.S. flat iron tree guard 60 cm dia and 2 m high, above ground consisting 4 nos 25 x 6 mm, 2.25 m long and 8 nos 25 x 3 mm 2 m long verticals M.S. flats, riveted to 3 nos 25 x 6 mm M.S. flat iron rings in two halves, fixing together at site with required six numbers of 8 mm dia and 30 mm long bolts, including painting two coats with synthetic enamel paint of approved brand and manufacture	Each	4533.10	25	113327.5

		over a coat of primer. One name plate of 1 mm thick M.S. sheet of size 250x100 mm shall be welded to the tree guard near the middle height and lettered CPWD / PWD/ any other approved name. The tree guard shall be suitably fixed to the ground by embedding four legs of tree guard in pits of suitable dia and to a depth of 25 cm, refilling the pits with soil and ramming, complete in all respect as per satisfaction and direction of Officer-in-charge.				
4	2.34	Providing & laying Selection no. 1 doob grass turf with earth 50mm to 60mm thickness of existing ground prepared with proper level and ramming with required tools wooden and than rolling the surface with light roller make the surface smoothen and light watering the same maintenance for 30 days or more till the grass establish properly,as per direction of officer in charge	Sqm	87.50	30000	2625000
5	2.5	Providing & fixing of White River (Stone) Pebbles size of 2" to 2.50" dia in natural colour at site of work including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Qtl.	610.70	1	610.7
6	3.3	Providing and displaying of Aglaonema Parrot Jungle (three in one), having ht. 30 cm and above with 20 to 25 leaves, well developed, fresh & healthy in 25 cm size of Earthen pot/Plastic pot & as per direction of the officerin-charge.	Each	67.65	15	1014.75

7	3.5	Providing and displaying of Aglaonema Pseudo-bractatum s, having ht. 30 cm and above with 3 to 4 suckers & 20 to 25 leaves, well developed, fresh and healthy in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	Each	87.15	15	1307.25
8	3.14	Providing and displaying of Araucaria cookie having ht. 75 cm to 90 cm, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	Each	215.25	15	3228.75
9	3.18	Providing and displaying of Areca Palm having ht. 90 cm to 1.20 m with 4 to 5 suckers, well developed, fresh and healthy with lush green foliage in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	Each	157.85	15	2367.75
10	3.26	Providing and displaying of Chamaedorea elegans palm having ht. 60 cm to 75 cm, well developed with fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot. & as per direction of the officer-in-charge.	Each	107.65	15	1614.75
11	3.27	Providing and displaying of Croton Challenger variety having ht. 30cm and above, well developed with full of fresh and healthy leaves in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	Each	45.10	15	676.5
12	3.3	Providing and displaying of Croton Golden having ht. 45 cm to 60 cm with 2 to 3 branches, well developed, fresh and healthy foliage in 25 cm size of Earthen	Each	56.40	15	846

		pot/Plastic pot as per direction of the officer-in-charge.				
13	3.4	Providing and displaying of Dieffenbachia Tropic-snow having ht. 60 cm & above with 8 - 10 leaves, well developed, fresh & healthy in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	Each	78.95	15	1184.25
14	3.44	Providing and displaying of Dracaena Song of India (three in one), having ht. 30 cm and above, multibranched, well developed with fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	Each	112.75	15	1691.25
15	3.57	Providing and displaying of Livistona palm having ht. 60 cm to 75 cm, well developed with 8 to 10 leaves, fresh & healthy foliage in 30 cm size of Earthen pot/Plastic pot. as per direction of the officer-in-charge.	Each	215.25	15	3228.75
16	3.63	Providing and displaying of Philodendron emerald red colour mounted on moss stick 90 cm ht., having 3 s placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	Each	377.20	15	5658
17	3.67	Providing and displaying of Philodendron Oxicodium Golden Colour Mounted on moss stick 1.20 m ht., having 3 to 4 s placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot/ Plastic pot & as per direction of the officer-in-charge.	Each	233.70	15	3505.5
18	3.81	Providing and displaying of Seaforthia Palm having ht. 90 cm to 1.20	Each	358.75	15	5381.25

		m with 6-8 suckers, well developed, fresh and healthy lush green leaves from bottom to top in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.				
19	4.2	Providing and Displaying Anemone hybrid (3 in one) variety well developed with fresh & healthy Flower in full bloom in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	86.10	15	1291.5
20	4.3	Providing and Displaying Antirrhinum Hybrid Dwarf variety (3 in one) well developed with fresh & healthy Flower multi branch in full bloom in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	54.35	15	815.25
21	4.6	Providing and Displaying Asiatic lilly hybrid variety (3 in one) in each pot having in full bloom 3 to 5 flowers 30 to 45 cm ht. well developed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	129.15	15	1937.25
22	4.8	Providing and Displaying Begonia rex having 15 to 23 cm ht., well developed with fresh & healthy foliage with 10 to 12 flowers in bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	64.60	15	969
23	4.1	Providing and Displaying Calceolaria hybrid variety in full bloom well developed with fresh & healthy foliage in 20 cm Earthen Pot/Plastic Pot as per direction of the officer-in-charge.	Each	118.90	15	1783.5
24	4.13	Providing and Displaying Chrysanthemum single variety in different colour well developed having 45 to 60 cm ht., minimum 100 and above half	Each	129.15	15	1937.25

		bloom flowers open well stacked with bamboo stick having three layer tiding by thread fresh and healthy foliage in 25 cm Earthen Pot and as per direction of the officer-in-charge.				
25	4.16	Providing and Displaying Cineraria Hybrid dwarf variety in different colour well developed with fresh & healthy foliage in bloom in 25 cm Earthen Pot/ Plastic Pot and as per direction of the officer-in-charge.	Each	64.60	15	969
26	4.19	Providing and Displaying Clianthus well developed, with fresh & healthy foliage in bloom 30 to 45 cm ht., with stacking in 25 cm Earthen Pot/ Plastic Pot and as per direction of the officer-in-charge.	Each	86.10	15	1291.5
27	4.22	Providing and Displaying Cyclamen hybrid variety fresh & healthy in full bloom well developed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	215.25	15	3228.75
28	4.24	Providing and Displaying Dahlia double kenya variety in different colour well developed with 3 to 4 flowers in half bloom, good foliage stacked with Green painted Bamboo sticks, 45 to 60 cm height in 25 cm Earthen Pot/ Plastic Pot and as per direction of the officer-in-charge.	Each	86.10	15	1291.5
29	4.28	Providing and Displaying Dianthus dwarf specimen 6-8 in a pot with fresh & healthy foliage in full bloom well developed in 35 cm Earthen Tray/Nand as per direction of the officer-in-charge.	Each	377.20	15	5658
30	4.32	Providing and Displaying Geranium double variety having 30 cm ht., in different colour well	Each	134.30	15	2014.5

		developed with fresh & healthy foliage (3 in one) well bloomed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.				
31	4.37	Providing and Displaying Marigold jaffri orange/yellow/Russet colour well developed with fresh & healthy foliage with 40 to 50 flowers in bloom specimen plant 60 to 75 cm ht in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	150.70	15	2260.5
32	4.41	Providing and Displaying Mimulus multi branching bushy plant in different colour well developed fresh & healthy in full bloom in 20 cm Earthen Pot in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	75.85	15	1137.75
33	4.42	Providing and Displaying Mesembryanthemum in different colour well developed with fresh & healthy foliage in full bloom in 20 cm Earthen Pot/ Plastic Pot and as per direction of the officer-in-charge.	Each	32.80	15	492
34	4.52	Providing and Displaying Petunia hybrid well developed with fresh & healthy foliage in full bloom 6-8 in 35 cm Earthen Tray/Nand as per direction of the officer-in-charge.	Each	322.90	15	4843.5
35	4.53	Providing and Displaying Phlox in different colour well developed with fresh & healthy foliage 30 cm ht., in full bloom with stacking in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	54.35	15	815.25
36	4.55	Providing and Displaying Poinsettia dwarf multi head, having upto 30 cm	Each	258.30	15	3874.5

		ht., with 3 to 4 branches with fully different colored top with fresh & healthy foliage well developed in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.				
37	4.61	Providing and Displaying Salvia ht. 45 to 60 cm multi branches stacking with bamboo stick specimen type with full bloom well developed in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	129.15	15	1937.25
38	4.71	Providing and Displaying Celosia well developed fresh & healthy 20 to 25 cm ht. (attractive) multi branching at blooming stage in 20 cm Earthen Pot/ Plastic Pot and as per direction of the officer-in-charge.	Each	54.35	15	815.25
39	4.72	Providing and Displaying Caladium Hybrid variety 3 to 4 in a pot well developed with fresh & healthy foliage 30 to 45 cm ht. in different colour 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	Each	64.60	15	969
40	4.93	Providing and Displaying Standard Rose (H.T. variety) 3 to 4 healthy branch 90 cm and above ht. well developed with one and above flowers in 25 cm Earthen Pot, as per direction of the officer-in-charge.	Each	150.70	15	2260.5
41	5.6	Providing and Displaying Adenium Obesum well developed with fresh & healthy 4 to 5 branch 60 to 75 cm ht. in 40 cm size Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.	Each	563.75	15	8456.25
42	5.10	Providing and Displaying Bird of paradise well developed with fresh & healthy 90 to 120 cm ht in	Each	389.50	15	5842.5

		30 cm Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.				
43	5.12	Providing and Displaying Bougainvillea named variety, Sobhra, Thima, Marry palmar, Cherry Blossom etc. well developed with fresh & healthy bushy in full bloom 75 to 90 cm ht. in 40 cm Cement Pot as per direction of the officer-in-charge.	Each	322.90	15	4843.5
44	5.17	Providing and Displaying Cyprus golden well shaped developed with good colored foliage fresh & healthy 60 to 75 cm ht in 30 cm Earthen Pot as per direction of the officer-in-charge.	Each	430.50	15	6457.5
45	5.38	Providing and Displaying Topiary of Ficus Bush King well developed with fresh & healthy foliage from Top to Bottom with single piller 60 to 75 cm spread, 210 to 225 cm ht., in 35 cm Cement Tray/Cement Pot as per direction of the officer-in-charge.	Each	1291.50	15	19372.5
46	7.4	Providing and stacking of Alstonia scholaris of height 150-165 cm. in bag of size 25 cm as per direction of the officer-in-charge.	Each	65.00	15	975
48	7.9	Providing and stacking of Bombax ceiba of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	Each	70.00	15	1050
49	7.1	Providing and stacking of Bottle palm of ht. 150-180 cm bottom girth 20-25 cm well developed in big poly bags of size 25 cm as per direction of the officer-in-charge.	Each	180.00	15	2700
50	7.13	Providing and stacking of Butea frondosa (Flame of Forest) of height 60-75 cm. in big poly bags of size 25 cm as per	Each	55.00	15	825

		direction of the officer-in-charge.				
51	7.15	Providing and stacking of Casuarina equisetifolia of height 150-165 cm in big poly bags of size 25 cm as per direction of the officer-in-charge.	Each	60.00	15	900
52	7.16	Providing and stacking of Cassia fistula (Amaltash) of height 120-135 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	Each	65.00	15	975
53	7.17	Providing and stacking of Cassia siamea of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	Each	65.00	15	975
54	8.1	Providing and stacking of Bauhinia acuminata height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	45.00	15	675
55	8.2	Providing and stacking of Bauhinia tomentosa (yellow) of height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	45.00	15	675
56	8.42	Providing and stacking of Jatropha multifida (red colour) of height 60-75 cm. multibranched in p.bag of size 25 cm as per direction of the officer-in-charge.	Each	45.00	15	675
1	2.2	Supplying and stacking of good earth at site including royalty and carriage upto 5 km lead complete (earth measured in stacks will be reduced by 20% for payment).	cum	515.60	100	51560
		Sub- total Amount Rs.				2923632.70
		Escalation	**-26%**			-760144.5
		Total Amount Rs.				**2163488.20**

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महेन्द्रूघाट - 800 004

Name of work- Upgradation of Jagjeewan stadium & Modification of V.N sharma Institute near Danapur Railway station under Danapur Division of East Central Railway.

Schedule :-G (Unforeseen items)						
Sl. No.	**DSR-2021**	**Description of items**	**Unit**	**Rate (Rs.)**	**Quantity**	**Amount (Rs.)**
		Any other items of ECR's DSR-2020 edition with up to date correction slips which are not covered by the item of Schedule- D-I,D-II,D-III,D-IV,D-IV(a) D-V,D-VI,D-VII,D-VIII,D-IX&D-X	Lumsum			5000000
		Sub- total Amount Rs.				5000000
		Escalation	-26%			-1300000
		Total Amount Rs.				**3700000**

DEEPAK KUMAR
Digitally signed by DEEPAK KUMAR
Date: 2026.06.18 13:22:39 +05'30'

ANNEXURES –A to O

1	Annexure- A	History Sheet Of The Tenderer
2	Annexure - B	Compliance of Eligibility Criteria by the tenderer regarding execution of similar single work.
3	Annexure- C	Compliance of Eligibility Criteria by the tenderer regarding contractual payment received.
4	Annexure - D	Details of construction machineries, tools and plants, vehicles etc.
5	Annexure - E	Details of technical and other personnels available on hand and proposed to be engaged in work.
6	Annexure - F	Details of works completed during last seven financial years and current year by the tenderer(s)
7	Annexure - G	Details of the works on hand by the tenderer(s)
8	Annexure - H	Declaration regarding association of railway officer(s) with tenderer(s)
9	Annexure - I	List of court cases during last 7 years
10	Annexure - J	List of Arbitration cases during last 7 years
11	Annexure - K	Broad plan of execution of this work within stipulated completion period
12	Annexure - L	Details of other credentials / facilities available with the firm/ contractor
13	Annexure - M	Format for certificate to be submitted / uploaded by the tenderer along with the tender document.
14	Annexure - M-I	Format for certificate to be submitted / uploaded by the tenderer along with the tender document.
15	Annexure - N	Format for BG Bond for BID security/ uploaded by the tenderer along with the documents
16	Annexure - O	Insurance Surety Bond for Performance Security

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DEEPAK KUMAR Digitally signed by DEEPAK KUMAR Date: 2026.06.18 13:23:08 +05'30'

SUDHIR KUMAR SINGH Digitally signed by SUDHIR KUMAR SINGH Date: 2026.06.18 13:31:25 +05'30'

PRATEEK RASTOGI Digitally signed by PRATEEK RASTOGI Date: 2026.06.18 13:39:13 +05'30'

ANNEXURE – 'A'

HISTORY SHEET OF THE TENDERER

i]	Name of the Company	:
ii]	Address of Registered Office	:
iii]	**State**	
iv]	**GSTIN**	
	Phone: **Fax:** **e-mail ID:**	
v]	Constitution of the Company/Firm	:
a]	Ownership particulars whether Private Ltd., Public Ltd., or Partnership firm or Proprietorship Firm or any other type duly supported by the documents such as Partnership Deed and Articles of constitution etc. as applicable.	:
b]	Name and address of collaborator[s]	:
c]	Nature of participation by collaborator[s] in shareholding of the Company	:
d]	Extent and nature of proposed participation by collaborator[s] in execution of this work	:
vi]	Number of years the firm has been in operation in India under its present	:
vii]	Any other information	

Signature of tenderer
Along with Seal

ANNEXURE – 'B'

The tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

Three similar works each costing not less than the amount equal to 30% of advertised value of the tender, or
Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
One similar work each costing not less than the amount equal to 60% of advertised value of the tender.

Note:-

In case of tenders for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

1. Name and style of the contractor with address [Present tenderer]
2. Name and scope of the work executed
   Scope of the work (executed items confirming to definition of similar nature of work should be clearly indicated).
3. Authority who have awarded the contract.
4. Full address of the authority under whom the contract was executed.
5. Whether it is a Govt./Railway/Semi Govt. organization.
6. Contractual Agreement No. and date.
7. Value of the contract

   [a] Original value of the contract.

   [b] Value of works executed and payment received [Three similar works each costing not less than the amount equal to 30% of advertised value of the tender or Two similar works each costing not less than the amount equal to 40% of advertised value of the tender or One similar work each costing not less than the amount equal to 60% of advertised value of the tender]
8. [a] Date of award of contract.
   [b] Date of actual physical completion of work.
9. Details of copy of documents attached in support of completion of above similar single work.

   [a] Certificate No. and date.
   [b] Authority issued.
10. Declaration by the tenderer: I hereby declare that the information given above are true and the copy of the certificate enclosed is genuine. If any of the information given above is found to be wrong at any time, my tender will liable to be rejected and such liability will be compensated by me.

Name and signature of Tenderer

along with Seal.

N.B.

[1] Certificates containing the above information will only be considered. In complete certificates/copy of bills/letter of acceptance will not be considered.

[2] For detailing please refer Para 2.3 and explanation of Para 2of Chapter 3

[3] For electrical work: Contractors having valid electrical contractors license for the required voltage level or above the required voltage level with Electrical supervisors license from any state/Central government licensing board and who fulfill the above requirements shall be eligible to apply. The intended participant must upload the valid Electrical contractors license and Electrical supervisors license separately along with the offer/tender as credential.

ANNEXURE – 'C'

Reference- Para10.2 &17.15.2 of GCC April 2022 of Annexure-I of ITT

Each Bidder or each member of a JV must fill in this form separately:

NAME OF BIDDER/JV PARTNER**:**

Annual Contractual Turnover Data for the Previous 3/4 Years (Contractual Payment only)			
Year	**Amount Currency**	**Exchange Rate**	**Indian National Rupees Equivalent**
Average Annual Contractual Turnover for last 3 years			

1. The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.
2. The information supplied shall be substantiated by data in the audited balance sheets and profit and loss accounts for the relevant years in respect of the bidder or all members constituting the bidder.
3. Contents of this form should be certified by a Chartered Accountant duly supported by Audited Balance Sheet duly certified by the Chartered Accountant.

SEAL AND SIGNATURE OF THE BIDDER

Certified that all figures and facts submitted in this form have been furnished after full consideration of all observations/notes in Auditor' s reports.

(Signature of Chartered Accountant)

Name of CA:_____

Registration No:_____

(Seal)

NB-1--Financial year means on and from 1st April to 31st March.

ANNEXURE – 'D'

DETAILS OF CONSTRUCTION MACHINERIES, TOOLS and PLANTS, VEHICLES ETC.AVAILABLE ON HAND AND PROPOSED TO BE UTILIZED IN WORK

Sl. No.	Description of equipment	Number available [Owned/ hired]	Date of purchase	Date of manufacture	Make	How driven [i. e] Petrol/Diesel /electrical	Condition of the equipment	Where the equipment can be inspected
1	2	3	4	5	6	7	8	9

Signature of tenderer
Along with Seal

ANNEXURE – 'E'

DETAILS OF TECHNICAL AND OTHER PERSONNELS AVAILABLE ON HAND and PROPOSED TO BE ENGAGED IN WORK

Sl	Name	Age	Technical qualification[s]	Position with the tenderer	Commencement of present employment	Total experience	Emoluments
1	2	3	4	5	6	7	8

Signature of tenderer
Along with Seal

ANNEXURE – ‘ F’

DETAILS OF WORKS COMPLETED DURING PREVIOUS SEVEN FINANCIAL YEARS and CURRENT YEAR BY THE TENDERER[s].

Sl	Name of the work with value of contract	Full address of the authority under whom the work has been executed with Telephone No. and Fax No.	Date of Award and Original completion period	Actual Date commencement and Actual Date of completion	Final value of contract in Rs.	Documentary proof of completion of work [enclose copies separately for each work and indicate Annexure No. in this column]
1	2	3	4	5	6	7

Signature of Tenderer

Along with Seal

ANNEXURE_G

LIST OF ALL WORKS IN HAND OF THE BIDDER

SN	Name of work	Total cost of contract value in Rs/- up to last sanctioned variation	Date of award month and year .	Completion period		Present progress		Value of total balance amount on date i.e. different of last sanction variation and paid so far.	Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started up to the date of inviting of tender
				Original	Extended	Financial	Physical		
1	2	3	4	5	6	7	8	9	10
1									
2									
3									
								B=Sum of column (10)	

Signature of CA
Along with seal

Reference---Para10.3&17.15.3 of GCC April 2022 of Annexure-I of ITT

Bid capacity formula = [A x N x 2] – 0.33xNxB

Provide value of A (in Rs).	(**Please fill this value as maximum value of Annex. C.**)

Where,

A = Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender), taking into account the completed as well as works in progress.

N= Number of years prescribed for completion of work for which bids has been invited.

B = Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started upto the date of inviting of tender.

Bid capacity (in Rs)={ (A x N.x2) – 0.33 x N x B.=Rs.....}

Available Bid capacity (in Rs) should be more than or equal to the total bid value of the present tender

Note:

(a) In case the tenders failed to submit the bid capacity statement along with the offer, their/his offer shall be considered as incomplete and will be rejected summarily.

(b) Please note all value in table are to essentially filled up.

(c) Value in column-9 is full balance work if extended DOC is within completion period of this tender

(d) If existing DOC of tabulated work is beyond the DOC of tender under consideration, then pro-rata amount of total balance as shown in column (9) be taken.

(e) All period of time for calculation purpose be roundup to number of months to nearest integer.

(f) THIS LIST MUST BE FILLED UP WITH DETAILS OF ALL WORKS IN HAND. ALL COLUMNS BE DULY FILLED UP.

(g) **Non submission of BID Capacity statement as explained at Para 2.3 of Chapter 3 & above, their/his offers shall be considered as incomplete & will be rejected summarily. Bid Capacity of all members in case of JV as detailed in Para 2.3 of Ch-3 be submitted in above format.**

Signature of CA
Along with seal

ANNEXURE – ‘ H’

DECLARATION REGARDING ASSOCIATION OF RAILWAY OFFICER[S] WITH TENDERER[S]

Sl	N a m e	Status with the tenderer	If working in Rly on the date of tendering, designation and place of posting	If retired on the date of tendering		
				Date of retirement	Status at retirement	Particulars of permission taken for associating with the tenderer
1	2	3	4	5	6	7

Signature of Tenderer
Along with Seal.

****

ANNEXURE – ‘ I’

LIST OF COURT CASES DURING PREVIOUS SEVEN FINANCIAL YEARS

Sl	Name of work	Value of work	Name of Client Deptt.	Name of the Court	Date of institution of case	Relief sought from Court	Brief reason of dispute	Final/Present position of the case
1	2	3	4	5	6	7	8	9

Signature of tenderer
Along with Seal

****

ANNEXURE – 'J'

LIST OF ARBITRATION CASES DURING PREVIOUS SEVEN FINANCIAL YEARS.

Sl	Name of work	Value of work	Name of Client Deptt.	Amount and date of claim preferred	Claim of Deptt. if any	Brief reasons of disputes	Final/Present position of the case
1	2	3	4	5	6	7	8

Signature of Tenderer
Along with Seal

****

ANNEXURE – 'K'

BROAD PLAN OF EXECUTION OF THIS WORK WITHIN THE STIPULATED COMPLETION PERIOD

Sl.No	Activity	Period of completion in months

Signature of Tenderer
Along with Seal.

****

ANNEXURE – 'L'

OTHER CREDENTIALS/FACILITIES OF THE FIRM/CONTRACTOR [WHICH ARE NOT COVERED IN ANNEXURE-A TO ANNEXURE – K]

Signature of Tenderer

Along with Seal.

****

ANNEXURE - M

FORMAT FOR CERTIFICATE TO BE SUBMITTED / UPLOADED BY TENDERER ALONGWITH THE TENDER DOCUMENTS

I.....(*Name and designation*)**appointed as the attorney/authorized/ signatory of the tenderer

M/s_____(hereinafter called the tenderer) for the purpose of the Tender documents for the work ofas per the tender No.____ of(*Railway*)**, do hereby solemnly affirm and state on the behalf of the tenderer including its constituents asunder:

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website www.ireps.gov.in. I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. **I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.**
6. **I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.**
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the **certificate** submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security may also lead to any other action provided in the contract including banning of business for a period of up to **tw**o year. Further, I/we (*insert name of the tenderer*) **_____and all my/our constituents understand that my/our offer shall be summarily rejected.
9. I/we also understand that if the contents of the certificate submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of

Bid Security/Security Deposit and Performance guarantee and may also lead to any other action provided in the contract including banning of business for a period of up to **two** year.

10. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

SEAL AND SIGNATURE OF THE TENDERER
Place:
Dated:

**The contents in Italics are only for guidance purpose. Details as appropriate are to be filled in suitably by tenderer.

Note

"On IREPS Module, a facility has already been created for online submission of Annexure-V. Therefore, the provision of downloading of Annexure-V of GCC & uploading of physically signed Annexure-V by the tenderer had been discontinued on IREPS." (Reference Railway board Letter no. 2022/CE-I/CT/GCC Correspondence dt : 14/05/2024.)

ANNEXURE – M (I)
Reference -Para 6.1 of ITT

(***This certificate is to be given by attorney/authorized signatory/each member of Partnership firm/Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc***.)

I/We……(Name), attorney/authorized signatory of the ……..….. (constituent firm/constituent partner) and member/partner of the ……(tenderering firm) hereby solemnly affirm and state as under:

1. I/we certify that ……..….. (constituent firm/constituent partner) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.

2. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed),

SEAL AND SIGNATURE
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:

Dated:

Annexure N

(Bid Security)

Bank Guarantee Bond from any scheduled commercial bank of India

(On non-judicial stamp paper, which should be in the name of the Executing Bank).

Name of the Bank: ----------

President of India,

Acting through,.....Railway,

Beneficiary.....Railway
Date:.....
Bank Guarantee Bond No. Date:---------
In consideration of the President of India acting through.....**(Designation & address of Contract Signing Authority**), ...Railway, ..., ... (hereinafter called "The railway") having invited the bid for.....through Notice inviting tender(NIT)No..----------, We have been informed that.[**Insert name of the Bidder**].....(**hereinafter called "the Bidder"**)intends to submit its bid (hereinafter called "the Bid").

WHEREAS, the Bidder is required to furnish Bid Security for the sum of **[Insert required Value of** Bid Security**]**, in the form of Bank Guarantee, according toconditions of Bid.

AND

WHEREAS,.....**Insert Name of the Bank]**,withitsBranch.....**[Insert Address]** having its Headquarters office at..... **[Insert Address]**, hereinafter called the **Bank,** acting through.....**[Insert Name and Designation of the authorised persons of the Bank]**, have, at the request of the Bidder, agreed to give guarantee for Bid Security as hereinafter contained, in favour of the Railway:

1. KNOW ALL MEN that by these present that I/We the undersigned [Insert name(s) of authorized representatives of the Bank], being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay to the Railway full amount in the sum of[Insert required Value of Bid Security] as above stated.
2. The Bank undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.
4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.

5. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the Railway and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by Railway at any time.

6. This guarantee will remain valid and effective from.....[**insert date of issue**]till.....[**insert date, which should be minimum 90 days beyond the expiry of validity of Bid**]. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.

7. The Bank Guarantee is unconditional and irrevocable.

8. The expressions Bank and Railway herein before used shall include their respective successors and assigns.

9. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the Railway. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC PublicationNo.758.

10. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details–

IFSC CODE	SBIN000RAIL
IFSC TYPE	BRANCH
BANK NAME	STATE BANK OF INDIA
BRANCH NAME	RAIL
CITY NAME	NAVI MUMBAI
ADDRESS	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
DISTRICT	NAVI MUMBAI
STATE	MAHARASHTRA
BG ENABLED	YES

11. The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee(s) of Bidder in favour of the Railway. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Railway.

Date..... .....
Place..... Bank's Seal and authorized signature(s)

[Name in Block letters] .....

[Designation with Code No.].....

[P/Attorney] No.

Witness:
1 Signature, Name & Address & Seal

2 Signature, Name &address &Seal Bank's Seal

[P/Attorney]No.

Note: All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.

ANNEXURE-O

B. New Annexure-XVII, Part-II of GCC-2022 shall be read as under:-

Reference GCC Para 16.(4)

Insurance Surety Bond for Performance Security

Name of the issuer of surety bond:

President of India,
Acting
through.....
.....
Railway.
Date: .....
.....
Surety Bond No: ..... Issue Date: .....
Amount of Bond: ..... Expiry Date: .....

WHEREAS, In consideration of the President of India acting through .....(Designation & address of contract signing authority)..... Railway..... (hereinafter called "The Railway") having accepted the bid of M/S XXXXX hereinafter called the contractor, for the work of XXX" under invitation for bids No XXXX Dated XXXXX, Vide Letter of Acceptance No.....

AND

WHEREAS, the contractor is required to furnish Performance Security for the sum of **₹.XXXX(Rupees XXXX Only)**, in the form of Surety Bond, being a condition precedent to the signing of the contract agreement.

SB No: Date:

WHEREAS, we, _____, (Name of insurance company) hereinafter called the Surety, acting through [Designation(s) of the authorised person of the Surety], have, at the request of the **M/s. XXXX** contractor, agreed to give Bond for performance security/ additional performance security as hereinafter contained:

1. KNOW ALL MEN by these present that I/We, the undersigned [Insert name(s) of authorized representatives of the Surety], being fully authorized to sign and incur obligations for and on behalf of the Surety, confirm that the Surety, hereby, unconditionally and irrevocably Bond to pay the Railway the full amount in the sum of **XXXX (Rupees XXXX Only)** as above stated.
2. The Surety undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Surety shall be final, conclusive and binding, absolute and unequivocal notwithstanding any disputes raised/pending before any Court, tribunal, arbitration or any authority or any threatened litigation by the Bidder or Bank.
3. On payment of any amount less than aforementioned full amount, as per demand of the Railway, the Bond shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Railway.

4. The Surety shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the contractor and without the Railway being required to show grounds or give reasons for its demand or the amount demanded.
5. The Surety Bond shall be unconditional and irrevocable.
6. The Bond hereinbefore shall not be affected by any change in the constitution of the Surety or in the constitution of the Contractor.
7. The Surety agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Railway and the Contractor, will in any way release us from the liability under this Bond; and the Surety, hereby, waives any requirement for notice of any such change, addition or modification to the Surety.
8. This Bond is valid and effective from the date of its issue, which is [insert date of issue). The Bond and our obligations under it will expire on **XXXX** (Expiry Date). All demands for payment under the Bond must be received by us on or before that date.
9. The Surety agrees that the Railways right to demand payment of aforementioned full amount in one instance or demand payments in parts totalling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Railway or the Bond is released by Railway before the Expiry date.
10. The Surety agrees that its obligation to pay any amount demanded by the Railway before the expiry of this Bond will continue until the amount demanded has been paid in full.
11. The expressions Surety and Railway hereinbefore used shall include their respective successors, administrators and assigns.
12. The Surety hereby undertakes not to revoke the Bond during its currency, except with the previous consent in writing of the Railway. This Bond is subject to the Uniform Rules for Demand Bonds, ICC Publication No. 758.
13. We, the Surety Insurer, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in the said Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, tribunal, arbitrator or any other authority.
14. The Bond shall be in addition to and without prejudice to any other security Bond (s) of the contractor in favour of the Railway available with the Railway. The Surety, under this Bond, shall be deemed as Principal Debtor of the Railway.

Notwithstanding anything to the contrary contained in these presents,

a. Our liability under this Surety Bond shall not exceed **XXXX (Rupees XXXXX Only).**

b. This Surety Bond shall be valid up to **XXXX** (being the date of expiry);

c. Unless the bank is served a written claim or demand on or before XXXX [date of expiry] all rights under this Bond shall be forfeited and the Surety shall be relieved and discharged from all liabilities under this Bond irrespective of whether or not the original Surety bond is returned to the Surety.

Dated the day of 2025

15. The Insurance Surety Bond shall be verified by sending mail to [customer.care@sbigeneral.in]. to

Place..... Bank's Seal and authorized signature(s)

[Name in Block letters] .....

[Designation with Code No.] .....

[P/Attorney] No.

Witness

1.

2.

[Note: All italicized texts are for guidance on how to prepare this Insurance Surety Bond and shall be deleted from final document.]

End of Tender Document

DEPAK KUMAR Digitally signed by DEEPAK KUMAR Date: 2026.06.18 13:24:09 +05'30'

SUDHIR KUMAR SINGH Digitally signed by SUDHIR KUMAR SINGH Date: 2026.06.18 13:31:52 +05'30'

PRATEEK RASTOGI Digitally signed by PRATEEK RASTOGI Date: 2026.06.18 13:39:57 +05'30'